

SEQUENCE LISTING

Third Wave Technologies

Allawi, Hatim

Argue, Brad T.

Bartholomay, Christian T.

Chehak, LuAnne

Curtis, Michelle L.

Eis, Peggy S.

Hall, Jeff G.

Ip, Hon S.

Ji, Lin

Kaiser, Michael

Kwiatkowski, Jr., Robert W.

Lukowiak, Andrew A.

Lyamichev, Victor

Lymaicheva, Natalie E.

Ma, WuPo

Neri, Bruce P.

Olson, Sarah M.

Olson-Munoz, Marilyn C.

Schaefer, James J.

Skrzypczynski, Zbigniew

Takova, Tsetska Y.

Thompson, Lisa C.

Vedvik, Kevin L.

<120> RNA Detection Assays

<130> FORS-06666

<140> 10/084,839

<141> 2002-02-26

<160> 4004

<170> PatentIn version 3.1

<210> 1

<211> 834

<212> PRT

<213> Thermus aquaticus

<400> 1

Met Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu 1 5 10 15

Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly 20 25 30

Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala 35 40 45

Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala Val Phe 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu 65 70 75 80

Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu 100 105 110 .

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg 130 135 140

145	Бей	TYL	GIII	Leu	150	261	Asp	Arg	Val	155	vai	ьеи	пів	PIO	160
Gly	His	Leu	Ile	Thr 165	Pro	Glu	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Glu	Gln	Trp 180	Val	Asp	Phe	Arg	Ala 185	Leu	Val	Gly	Asp	Pro 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Leu	Lys	Leu
Leu	Lys 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Asn	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Val 225	Lys	Pro	Glu	Asn	Val 230	Arg	Glu	Lys	Ile	Lys 235	Ala	His	Leu	Glu	Asp 240
Leu	Arg	Leu	Ser	Leu 245	Glu	Leu	Ser	Arg	Val 250	Arg	Thr	Asp	Leu	Pro 255	Leu
Glu	Val	Asp	Leu 260	Ala	Gln	Gly	Arg	Glu 265	Pro	Asp	Arg	Glu	Gly 270	Leu	Arg
Ala	Phe	Leu 275	Glu	Arg	Leu	Glu	Phe 280	Gly	Ser	Leu	Leu	His 285	Glu	Phe	Gly
Leu	Leu 290	Glu	Ala	Pro	Ala	Pro 295	Leu	Glu	Glu	Ala	Pro 300	Trp	Pro	Pro	Pro
Glu 305	Gly	Ala	Phe	Val	Gly 310	Phe	Val	Leu	Ser	Arg 315	Pro	Glu	Pro	Met	Trp 320
Ala	Glu	Leu	Lys	Ala 325	Leu	Ala	Ala	Суз	Arg 330	Asp	Gly	Arg	Val	His 335	Arg
Ala	Ala	Asp	Pro 340	Leu	Ala	Gly	Leu	Lys 345	Asp	Leu	Lys	Glu	Val 350	Arg	Gly
Leu	Leu	Ala 355	Lys	Asp	Leu	Ala	Val 360	Leu	Ala	Ser	Arg	Glu 365	Gly	Leu	Asp
	370				Asp	375					380				
Ser 385	Asn	Thr	Thr	Pro	Glu 390	Gly	Val	Ala	Arg	Arg 395	Tyr	Gly	Gly	Glu	Trp

Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Val Phe Arg Leu Ala 475 Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu 485 490 Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly 500 Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His 515 520 Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys 535 530 Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly 545 550 Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu 565 Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu 580 Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu 600 Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile

His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val

Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu 660 665 670

Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr 675 680 685

Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys 690 700

Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly 705 710 715 720

Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn 725 730 735

Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn 740 745 750

Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val 755 760 765

Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln 770 780

Val His Asp Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu 785 790 795 800

Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala 805 810 815

Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala 820 825 830

Lys Gly

<210> 2

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 2

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 10 15

Leu Val Asp Gly His His Lèu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

- Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255
- Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala
 260 265 270
- Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285
- Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 290 295 300
- Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310315315
- Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335
- Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu 340 345 350
- Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu 355 360 365
- Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380
- Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395
- Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn 405 410 415
- Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp Leu Tyr His
 420 425 430
- Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr 435 440 445
- Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu 450 455 460
- Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly 465 470 475
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe

Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn 530 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His 625 630 635

Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

·Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val 785 790 795 800

Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Gly His His His His His 835

<210> 3

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 3

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 120 Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 155 Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly 165 170 175 Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro 180 185 Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu 195 Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu 245 250

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val

- His Arg Ala Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala 340 345 350
- Arg Gly Leu Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly 355 360 365
- Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu 370 375 380
- Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly 385 390 395 400
- Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu 405 410 415
- Phe Ala Asn Leu Trp Gly Arg Leu Glu Glu Glu Glu Arg Leu Trp 420 425 430
- Leu Tyr Arg Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met 435 440 445
- Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser 450 460
- Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg 465 470 475 480
- Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg 485 490 495
- Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys 500 505 510
- Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu 515 520 525
- Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys 530 540
- Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg 545 550 555 560
- Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp 600 Leu Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 615 His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg 630 Asp Ile His Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly 660 665 Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 680 Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 Met Val Lys Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu 770 Leu Gln Val His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala 785 790 800 Glu Ala Val Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro

Leu Ala Val Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu

825

820

Ser Ala Lys Glu His His His His His His 835 840

<210> 4

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 4

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

1 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg

- Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190
- Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205
- Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220
- Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240
- Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255
- Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 265 270
- Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285
- Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Glu 290 295 300
- Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310315315
- Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335
- Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu 340 345 350
- Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu 355 360 365
- Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380
- Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400
- Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His 420 Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly 475 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys 500 505 Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 605 Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 630 640 Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr

660

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 5

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 5

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

10

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255

Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asn
Leu	Trp	Gly	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg
Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Val
Ala 465	Glu	Glu	Ile	Ala	Arg 470	Leu	Glu	Ala	Glu	Val 475	Phe	Arg	Leu	Ala	Gly 480
His	Pro	Phe	Asn	Leu 485	Asn	Ser	Arg	Asp	Gln 490	Leu	Glu	Arg	Val	Leu 495	Phe
Asp	Glu	Leu	Gly 500	Leu	Pro	Ala	Ile	Gly 505	Lys	Thr	Glu	Lys	Thr 510	Gly	Lys

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His 625 630 635 640

Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp 645 650

Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys

755 760 765

Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val
785 790 795 800

Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Gly His His His His His 835

<210> 6

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 6

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Leu	Ala 110	Arg	Leu
Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 150	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Ala	Asp	Pro	Leu 340	Ala	Gly	Leu	Lys	Asp 345	Leu	Lys	Glu	Val	Arg 350	Gly	Leu

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr 435 440 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 7

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 7

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190 Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arq Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Glu 290 300 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 Asp Leu Leu Ala Leu Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn Leu Trp Gly Arg Leu Glu Glu Glu Glu Arg Leu Leu Trp Leu Tyr Arg

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr

- Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu 450 455 460
- Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly 465 470 475 480
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495
- Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys
 500 505 510
- Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525
- Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn 530 535 540
- Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg 545 550 555 560
- Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575
- Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590
- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 635 635
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655
- Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670
- Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 8

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 8

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly	Leu	Thr 35	Thr	Ser	Arg	Gly	Glu 40	Pro	Val	Gln	Ala	Val 45	Tyr	Gly	Phe

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255

Val Asp Phe Ala Lys Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu

Leu	Glu	Ser	Pro	Lys	Ala	Leu	Glu	Glu	Ala	Pro	Trp	Pro	Pro	Pro	Glu
	290					295					300				

- Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 315 320
- Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335
- Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 350
- Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 365
- Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380
- Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400
- Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn 405 410 . 415
- Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His 420 425 430
- Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr 435 440 445
- Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu 450 45 460
- Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly 465 470 475 480
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495
- Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510
- Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn 530 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 635 635

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780 His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 9

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 9

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys

- Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 140
- Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155
- Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175
- Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190
- Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205
- Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220
- Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240
- Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255
- Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 265 270
- Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285
- Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Glu 290 295 300
- Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 315 320
- Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335
- Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu 340 345 350
- Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn 405 410 415

Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys 500 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 10

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 10

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro
180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu 195 200 205

Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Asp 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His 435	Glu	Val	Glu	Lys	Pro 440	Leu	Ser	Arg	Val	Leu 445	Ala	His	Met
Glu	Ala 450	Thr	Gly	Val	Arg	Arg	Asp	Val	Ala	Tyr	Leu 460	Gln	Ala	Leu	Ser

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys 500 Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 530 535 Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arq 545 550 555 560 Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 570 Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 590 Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg 625 630 Asp Ile His Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu 645 Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg

Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg

690

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp 725 730 735

Leu Glu Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala 785 790 795 800

Glu Ala Val Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Glu His His His His His His 835 840

<210> 11

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 11

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu 195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro 305 Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val His Arg Ala Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu 375 Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly 385 390 395 400 Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu 405 410 Phe Ala Asn Leu Trp Gly Arg Leu Glu Glu Glu Arg Leu Leu Trp 420 Leu Tyr Arg Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met 435 440 Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg 465 470 Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp 595 600 605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 635 640

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800 Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835

<210> 12

<211> 833

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 12

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys
130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 375 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu 450 460

Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495

Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn 530 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 625

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His 625 630 635 640 Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asp Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val 785 790 795 800

Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Gly

<210> 13

<211> 833

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 13

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Ala	Asp	Pro	Leu 340	Ala	Gly	Leu	Lys	Asp 345	Leu	Lys	Glu	Val	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ala	Val	Leu 360	Ala	Ser	Arg	Glu	Gly 365	Leu	Asp	Leu
Val	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Asp	Ala	Ala	His 405	Arg	Ala	Leu	Leu	Ser 410	Glu	Arg	Leu	His	Arg 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Lys	Leu	Leu	Trp	Leu 430	Tyr	His
Glu	Val	Glu 435	Lys	Pro	Leu	Ser	Arg 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Arg	Asp	Val	Ala 455	Tyr	Leu	Gln	Ala	Leu 460	Ser	Leu	Glu	Leu
Ala 465	Glu	Glu	Ile	Arg	Arg	Leu	Glu	Glu	Glu	Val	Phe	Arg	Leu	Ala	Gly

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn 530 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asp Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu

<210> 14

<211> 833

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 14

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 70 Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 150 155 Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn 405 410 415

Leu Trp Gly Arg Leu Glu Gly Glu Arg Leu Leu Trp Leu Tyr Arg
420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser

Ser	Ser	Asp	Pro 580	Asn	Leu	Gln	Asn	Ile 585	Pro	Val	Arg	Thr	Pro 590	Leu	Gly
Gln	Arg	Ile 595	Arg	Arg	Ala	Phe	Val 600	Ala	Glu	Ala	Gly	Trp 605	Ala	Leu	Val
Ala	Leu 610	Asp	Tyr	Ser	Gln	Ile 615	Glu	Leu	Arg	Val	Leu 620	Ala	His	Leu	Ser
Gly 625	Asp	Glu	Asn	Leu	Ile 630	Arg	Val	Phe	Gln	Glu 635	Gly	Lys	Asp	Ile	His 640
Thr	Gln	Thr	Ala	Ser 645	Trp	Met	Phe	Gly	Val 650	Pro	Pro	Glu	Ala	Val 655	Asp
Pro	Leu	Met	Arg 660	Arg	Ala	Ala	Lys	Thr 665	Val	Asn	Phe	Gly	Val 670	Leu	Tyr
Gly	Met	Ser 675	Ala	His	Arg	Leu	Ser 680	Gln	Glu	Leu	Ala	Ile 685	Pro	Tyr	Glu
Glu	Ala 690	Val	Ala	Phe	Ile	Glu 695	Arg	Tyr	Phe	Gln	Ser 700	Phe	Pro	Lys	Val
Arg 705	Ala	Trp	Ile	Glu	Lys 710	Thr	Leu	Glu	Glu	Gly 715	Arg	Lys	Arg	Gly	Tyr 720
Val	Glu	Thr	Leu	Phe 725	Gly	Arg	Arg	Arg	Tyr 730	Val	Pro	Asp	Leu	Asn 735	Ala
Arg	Val	Lys	Ser 740	Val	Arg	Glu	Ala	Ala 745	Glu	Arg	Met	Ala	Phe 750	Asn	Met
Pro	Val	Gln 755	Gly	Thr	Ala	Ala	Asp 760	Leu	Met	Lys	Leu	Ala 765	Met	Val	Lys
Leu	Phe 770	Pro	Arg	Leu	Arg	Glu 775	Met	Gly	Ala	Arg	Met 780	Leu	Leu	Gln	Val
His 785	Asp	Glu	Leu	Leu	Leu 790	Glu	Ala	Pro	Gln	Ala 795	Arg	Ala	Glu	Glu	Val 800
Ala	Ala	Leu	Ala	Lys 805	Glu	Ala	Met	Glu	Lys 810	Ala	Tyr	Pro	Leu	Ala 815	Val

Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Gly

<210> 15

<211> 833

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 15

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys
115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 200 Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 230 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 290 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn

- Leu Leu Lys Arg Leu Glu Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430
- Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445
- Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460
- Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495
- Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510
- Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525
- Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540
- Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560
- Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575
- Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 590
- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asp Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu

<210> 16

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 16

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu	
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala	
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu	
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu	
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320	
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala	
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu	
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu	
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser	
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400	
Glu	Glu	Ala	Gly	His 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asn	
Leu	Trp	Gly	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg	
Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr	
Gly	Val 450	Arg	Arg	Asp	Val	Ala 455	Tyr	Leu	Gln	Ala	Leu 460	Ser	Leu	Glu	Leu	
Ala 465	Glu	Glu	Ile	Arg	Arg 470	Leu	Glu	Glu	Glu	Val 475	Phe	Arg	Leu	Ala	Gly 480	
His	Pro	Phe	Asn	Leu 485	Asn	Ser	Arg	Asp	Gln 490	Leu	Glu	Arg	Val	Leu 495	Phe	

Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn 530 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 17

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 17

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly	Tyr	Lys	Ala	Gly 85	Arg	Ala	Pro	Thr	Pro 90	Glu	Asp	Phe	Pro	Arg 95	Gln
Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Leu	Ala 110	Arg	Leu
Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 150	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 . 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu His Arg Asn 405 410 415

Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu 450 460

Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn 530 535 540

Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly

- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 635 640
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655
- Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
 660 665 670
- Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685
- Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700
- Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720
- Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735
- Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750
- Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765
- Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780
- His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800
- Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 . 810 815
- Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 18

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 18

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175 Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 265 270 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 290 295 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn

Leu Leu Lys Arg Leu Glu Glu Glu Glu Arg Leu Leu Trp Leu Tyr Arg

- Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445
- Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu 450 . 460
- Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly
 465 470 475 480
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485
 490
 495
- Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510
- Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525
- Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn 530 535 540
- Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg 545 550 560
- Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575
- Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590
- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655
- Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 19

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 19

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255

Val Asp Phe Ala Lys Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala

- Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285
- Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Glu 290 295 300
- Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 315 320
- Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335
- Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 350
- Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 365
- Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 375 380
- Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400
- Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn 405 410 415
- Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430
- Glu Val Glu Arg Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr 435 440 445
- Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu 450 455 460
- Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly
 465 470 475 480
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495
- Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn 530 Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 570 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 600 Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 720 Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys

760

755

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 20

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 20

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu

- Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125
- Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140
- Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160
- Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175
- Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190
- Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205
- Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220
- Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240
- Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255
- Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 265 270
- Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285
- Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 290 295 300
- Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 315 320
- Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335
- Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Lys Leu Leu Trp Leu Tyr His
420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Arg Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 21

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 21

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn	Leu	Pro 195	Gly	Val	Lys	Gly	11e 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Ala	Asp	Pro	Leu 340	Ala	Gly	Leu	Lys	Asp 345	Leu	Lys	Glu	Val	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ala	Val	Leu 360	Ala	Ser	Arg	Glu	Gly 365	Leu	Asp	Leu
Val	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Asp	Ala	Ala	His 405	Arg	Ala	Leu	Leu	Ser 410	Glu	Arg	Leu	His	Arg 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Lys	Leu	Leu	Trp	Leu 430	Tyr	His
Glu	Val	Glu 435	Lys	Pro	Leu	Ser	Arg	Val	Leu	Ala	His	Met	Glu	Ala	Thr

Gly Val Arg Leu Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Val 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val

690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 22

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 22

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly	Leu	Thr 35	Thr	Ser	Arg	Gly	Glu 40	Pro	Val	Gln	Ala	Val 45	Tyr	Gly	Phe
Ala	Lys 50	Ser	Leu	Leu	Lys	Ala 55	Leu	Lys	Glu	Asp	Gly 60	Asp	Ala	Val	Ile
Val 65	Val	Phe	Asp	Ala	Lys 70	Ala	Pro	Ser	Phe	Arg 75	His	Glu	Ala	Tyr	Gly 80
Gly	Tyr	Lys	Ala	Gly 85	Arg	Ala	Pro	Thr	Pro 90	Glu	Asp	Phe	Pro	Arg 95	Gln
Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Leu	Ala 110	Arg	Leu
Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 150	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Glu 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335

Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu 340 345 350

Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu 355 360 365

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn 405 410 415

Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp Leu Tyr His 420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Leu 450 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 550 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 23

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 23

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220 Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 280 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 290 295 300 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu

Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn
405
410
415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His
420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460

Ala Glu Glu Ile Arg Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 24

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 24

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 180

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 230 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 295 300 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 375 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400 Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn 405 Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp Leu Tyr His 420 Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val

450

Ala Glu Glu Ile Ala Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly 465 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 490 Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys 500 Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 560 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr

715

720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 25

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 25

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Glu 290

Gly 305	Ala	Phe	Val	Glý	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Ala	Asp	Pro	Leu 340	Ala	Gly	Leu	Lys	Asp 345	Leu	Lys	Glu	Val	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ala	Val	Leu 360	Ala	Ser	Arg	Glu	Gly 365	Leu	Asp	Leu
Val	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Asp	Ala	Ala	His 405	Arg	Ala	Leu	Leu	Ser 410	Glu	Arg	Leu	His	Arg 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Lys	Leu	Leu	Trp	Leu 430	Tyr	His
Glu	Val	Glu 435	Lys	Pro	Leu	Ser	Arg 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Val
Ala 465	Glu	Glu	Ile	Ala	Arg 470	Leu	Glu	Ala	Glu	Val 475	Phe	Arg	Leu	Ala	Gly 480
His	Pro	Phe	Asn	Leu 485	Asn	Ser	Arg	Asp	Gln 490	Leu	Glu	Arg	Val	Leu 495	Phe
Asp	Glu	Leu	Arg 500	Leu	Pro	Ala	Ile	Gly 505	Lys	Thr	Glu	Lys	Thr 510	Gly	Lys
Arg	Ser	Thr 515	Ser	Ala	Ala	Val	Leu 520	Glu	Ala	Leu	Arg	Glu 525	Ala	His	Pro
Ile	Val 530	Glu	Lys	Ile	Leu	Gln 535	Tyr	Arg	Glu	Leu	Thr 540	Lys	Leu	Lys	Ser
Thr	Tyr	Ile	Asp	Pro	Leu	Pro	Asp	Leu	Ile	His	Pro	Arg	Thr	Gly	Arg

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800 Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 26

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 26

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 Asp Leu Leu Ala Leu Ala Ala Arg Gly Gly Arg Val His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu 360 Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn 405 410 415

Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp Leu Tyr His
420 425 430

Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 27

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 27

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	A1a 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Ala	Asp	Pro	Leu 340	Ala	Gly	Leu	Lys	Asp 345	Leu	Lys	Glu	Val	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ala	Val	Leu 360	Ala	Ser	Arg	Glu	Gly 365	Leu	Asp	Leu
Val	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Asp	Ala	Ala	His 405	Arg	Ala	Leu	Leu	Ser 410	Glu	Arg	Leu	His	Arg 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Lys	Leu	Leu	Trp	Leu 430	Tyr	His
Glu	Val	Glu 435	Lys	Pro	Leu	Ser	Arg 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Val
Ala 465	Glu	Glu	Ile	Ala	Arg 470	Leu	Glu	Ala	Glu	Val	Phe	Arg	Leu	Ala	Gly

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys
500 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser
565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 28

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 28

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Va1 65	Val	Phe	Asp	Ala	Lys 70	Ala	Pro	Ser	Phe	Arg 75	His	Glu	Ala	Tyr	Gly 80
Gly	Tyr	Lys	Ala	Gly 85	Arg	Ala	Pro	Thr	Pro 90	Glu	Asp	Phe	Pro	Arg 95	Gln
Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Leu	Ala 110	Arg	Leu
Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 150	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 390 395 Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn 405 410 415 Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His 420 Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Asn 535 Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser

- Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590
- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655
- Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670
- Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685
- Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700
- Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720
- Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735
- Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750
- Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765
- Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780
- His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800
- Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 29

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 29

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 230 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 290 295 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 375 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr

Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn

- Leu Leu Lys Arg Leu Glu Gly Glu Glu Lys Leu Leu Trp Leu Tyr His 420 425 430
- Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr 435 440 445
- Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 460
- Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495
- Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys 500 505 510
- Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525
- Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540
- Thr Tyr Val Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560
- Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575
- Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590
- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 30

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 30

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45 .

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Ala	Asp	Pro	Leu 340	Ala	Gly	Leu	Lys	Asp 345	Leu	Lys	Glu	Val	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ala	Val	Leu 360	Ala	Ser	Arg	Glu	Gly 365	Leu	Asp	Leu
Val	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Asp	Ala	Ala	His 405	Arg	Ala	Leu	Leu	Ser 410	Glu	Arg	Leu	His	Arg 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Lys	Leu	Leu	Trp	Leu 430	Tyr	His
Glu	Val	Glu 435	Lys	Pro	Leu	Ser	Arg 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Val
Ala 465	Glu	Glu	Ile	Ala	Arg 470	Leu	Glu	Ala	Glu	Val 475	Phe	Arg	Leu	Ala	Gly 480
His	Pro	Phe	Asn	Leu 485	Asn	Ser	Arg	Asp	Gln	Leu	Glu	Arg	Val	Leu 195	Phe

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 590 Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Gly Trp Leu Leu Val 595 600 Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 630 Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 31

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 31

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly	Tyr	Lys	Ala	Gly 85	Arg	Ala	Pro	Thr	Pro 90	Glu	Asp	Phe	Pro	Arg 95	Gln
Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Leu	Ala 110	Arg	Leu
Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 150	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 . 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly

- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 635 640
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655
- Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670
- Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685
- Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700
- Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr
 705 710 715 720
- Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735
- Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750
- Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765
- Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780
- His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800
- Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815
- Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 32

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 32

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

1 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175 Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp
180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 265 270

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Glu 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn 405 410 415

Leu Leu Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg

Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thi
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Va]
Ala 465	Glu	Glu	Ile	Ala	Arg 470	Leu	Glu	Ala	Glu	Val 475	Phe	Arg	Leu	Ala	Gl ₃ 480
His	Pro	Phe	Asn	Leu 485	Asn	Ser	Arg	Asp	Gln 490	Leu	Glu	Arg	Val	Leu 495	Ph€
Asp	Glu	Leu	Gly 500	Leu	Pro	Ala	Ile	Gly 505	Lys	Thr	Gln	Lys	Thr 510	Gly	Lys
Arg	Ser	Thr 515	Ser	Ala	Ala	Val	Leu 520	Glu	Ala	Leu	Arg	Glu 525	Ala	His	Pro
Ile	Val 530	Glu	Lys	Ile	Leu	Gln 535	Tyr	Arg	Glu	Leu	Thr 540	Lys	Leu	Lys	Sei
Thr 545	Tyr	Ile	Asp	Pro	Leu 550	Pro	Asp	Leu	Ile	His 555	Pro	Arg	Thr	Gly	Arc 560
Leu	His	Thr	Arg	Phe 565	Asn	Gln	Thr	Ala	Thr 570	Ala	Thr	Gly	Arg	Leu 575	Sei
Ser	Ser	Asp	Pro 580	Asn	Leu	Gln	Asn	Ile 585	Pro	Val	Arg	Thr	Pro 590	Leu	Gly
Gln	Arg	Ile 595	Arg	Arg	Ala	Phe	Ile 600	Ala	Glu	Glu	Gly	Trp 605	Leu	Leu	Va]
Ala	Leu 610	Asp	Tyr	Ser	Gln	Ile 615	Glu	Leu	Arg	Val	Leu 620	Ala	His	Leu	Sei
Gly 625	Asp	Glu	Asn	Leu	Ile 630	Arg	Val	Phe	Gln	Glu 635	Gly	Arg	Asp	Ile	His 640
Thr	Glu	Thr	Ala	Ser 645	Trp	Met	Phe	Gly	Val 650	Pro	Arg	Glu	Ala	Val 655	Asp

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 33

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 33

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala

Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285

Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Glu 290 295 300

Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 315 320

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn 405 410 415

Leu Trp Lys Arg Leu Glu Glu Glu Glu Arg Leu Leu Trp Leu Tyr Arg 420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510

Arg	Ser	Thr 515	Ser	Ala	Ala	Val	Leu 520	Glu	Ala	Leu	Arg	Glu 525	Ala	His	Pro
Ile	Val 530	Glu	Lys	Ile	Leu	Gln 535	Tyr	Arg	Glu	Leu	Thr 540	Lys	Leu	Lys	Ser
Thr 545	Tyr	Ile	Asp	Pro	Leu 550	Pro	Asp	Leu	Ile	His 555	Pro	Arg	Thr	Gly	Arg 560
Leu	His	Thr	Arg	Phe 565	Asn	Gln	Thr	Ala	Thr 570	Ala	Thr	Gly	Arg	Leu 575	Ser
Ser	Ser	Asp	Pro 580	Asn	Leu	Gln	Asn	Ile 585	Pro	Val	Arg	Thr	Pro 590	Leu	Gly
Gln	Arg	Ile 595	Arg	Arg	Ala	Phe	Ile 600	Ala	Glu	Glu	Gly	Trp 605	Leu	Leu	Val
Ala	Leu 610	Asp	Tyr	Ser	Gln	Ile 615	Glu	Leu	Arg	Val	Leu 620	Ala	His	Leu	Ser
Gly 625	Asp	Glu	Asn	Leu	Ile 630	Arg	Val	Phe	Gln	Glu 635	Gly	Arg	Asp	Ile	His 640
Thr	Glu	Thr	Ala	Ser 645	Trp	Met	Phe	Gly	Val 650	Pro	Arg	Glu	Ala	Val 655	Asp
Pro	Leu	Met	Arg 660	Arg	Ala	Ala	Lys	Thr 665	Ile	Asn	Phe	Gly	Val 670	Leu	Tyr
Gly	Met	Ser 675	Ala	His	Arg	Leu	Ser 680	Gln	Glu	Leu	Ala	Ile 685	Pro	Tyr	Glu
Glu	Ala 690	Gln	Ala	Phe	Ile	Glu 695	Arg	Tyr	Phe	Gln	Ser 700	Phe	Pro	Lys	Val
Arg 705	Ala	Trp	Ile	Glu	Lys 710	Thr	Leu	Glu	Glu	Gly 715	Arg	Arg	Arg	Gly	Tyr 720
Val	Glu	Thr	Leu	Phe 725	Gly	Arg	Arg	Arg	Tyr 730	Val	Pro	Asp	Leu	Glu 735	Ala
Arg	Val	Lys	Ser 740	Val	Arg	Glu	Ala	Ala 745	Glu	Arg	Met	Ala	Phe 750	Asn	Met
Pro	Val	Gln 755	Gly	Thr	Ala	Ala	Asp	Leu	Met	Lys	Leu	Ala	Met	Val	Lys

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 34

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 34

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly
35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

- Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140
- Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160
- Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly
 165 170 175
- Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro 180 185 190
- Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu 195 200 205
- Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu 210 215 220
- Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu 225 230 235 240
- Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu 245 250 255
- Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly 260 265 270
- Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu 275 280 285
- Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro 290 295 300
- Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro 305 310 315 320
- Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Asp Gly Arg Val 325 330 335
- His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly 355 360 Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu 375 Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly 390 Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu 410 His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met 435 440 Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Val Phe Arg Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys 500 Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu 515 520 Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 530 535 Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 545 550 560 Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 575 Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp 595 600

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 635 640

Asp Ile Ala Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp
725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 775 780

Leu Gln Val His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835

<210> 35

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 35

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu 195 200 Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu 210 215 Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu 280 Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly 355 Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu 370 375 Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly 385 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp
420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met 435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg 475 Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 530 535 540 Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 545 550 560 Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 615 His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe

690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp
725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Ala Met Ala 740 745 .750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val His Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835

<210> 36

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 36

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 40 Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 120 Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu 195

195 200 205

Lys Leu Leu Lys Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys Asn Leu 210 215 220

Asp Arg Val Lys Pro Glu Asn Val Arg Glu Lys Ile Lys Ala His Leu 225 230 235 240

Glu Asp Leu Arg Leu Ser Leu Glu Leu Ser Arg Val Arg Thr Asp Leu 245 250 255

Pro Leu Glu Val Asp Leu Ala Gln Gly Arg Glu Pro Asp Arg Glu Gly 260 265 270

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu 275 280 285

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro 290 295 300

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro 305 310 315 320

Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val 325 330 335

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu 370 375 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly 385 390 395 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Trp
420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met 435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser 450 455 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg 485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys 500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu 515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp
595 600 605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 635 640

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp 725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835

<210> 37

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 37

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

	130	цу	AIG	Giu	цу	135	Gly	171	Gru	Vai	140	116	БСС	1111	AIC
Asp 145	Arg	Asp	Leu	Tyr	Gln 150	Leu	Val	Ser	Asp	Arg 155	Val	Ala	Val	Leu	His 160
Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
T.e.11	Δαη	T.e.u	Val	Dro	G1.,	λας	7 ~~	Dro	Mo+	Levi	T 011	77-	Т	T 011	T 0

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu 410 His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser 450 455 Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Val Phe Arg 465 470 480 Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg 485 490 Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Lys Lys Thr Lys Lys 500 505 Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu 520 Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 535 Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 545 550 555 560 Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp 600

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala

615

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 635

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp 725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 775 780

Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835 . 840

<210> 38

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 38

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg
Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Val

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 680 Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 39

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 39

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala	Lys 50	Ser	Leu	Leu	Lys	Ala 55	Leu	Lys	Glu	Asp	60 GIA	Asp	Ala	Val	Ile
Val 65	Val	Phe	Asp	Ala	Lys 70	Ala	Pro	Ser	Phe	Arg 75	His	Glu	Ala	Tyr	Gly 80
Gly	Tyr	Lys	Ala	Gly 85	Arg	Ala	Pro	Thr	Pro 90	Glu	Asp	Phe	Pro	Arg 95	Gln
Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Leu	Ala 110	Arg	Leu
Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 1 [.] 50	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu

305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg
Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Val
Ala 465	Glu	Glu	Ile	Ala	Arg 470	Leu	Glu	Ala	Glu	Val 475	Phe	Arg	Leu	Ala	Gly 480
His	Pro	Phe	Asn	Leu 485	Asn	Ser	Arg	Asp	Gln 490	Leu	Glu	Arg	Val	Leu 495	Phe
Asp	Glu	Leu	Gly 500	Leu	Pro	Ala	Ile	Gly 505	Lys	Thr	Gln	Lys	Thr 510	Gly	Lys
Arg	Ser	Thr 515	Ser	Ala	Ala	Val	Leu 520	Glu	Ala	Leu	Arg	Glu 525	Ala	His	Pro
Ile	Val 530	Glu	Lys	Ile	Leu	Gln 535	Tyr	Arg	Glu	Leu	Thr 540	Lys	Leu	Lys	Ser
Thr	Tyr	Ile	Asp	Pro	Leu	Pro	Asp	Leu	Ile	His	Pro	Arg	Thr	Gly	Arg

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile Ala 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800 Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 40

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 40

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 . 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140 Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 150 Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 285 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 Asp Leu Leu Ala Leu Ala Ala Arg Gly Gly Arg Val His Arg Ala Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Ala Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640 Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr
705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 41

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 41

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 . 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

225	гуѕ	Pro	Ala	iie	230	GIU	ьys	iie	Leu	235	HIS	Met	Asp	Asp	ьеи 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg
Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Val
Ala 465	Glu	Glu	Ile	Ala	Arg 470	Leu	Glu	Ala	Glu	Val 475	Phe	Arg	Leu	Ala	Gly 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Lys Lys Thr Gln Lys Thr Gly Lys
500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 42

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 42

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60 Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu 70 75 Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 150 Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305

Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 365

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380

Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys
500 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser

- Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590
- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655
- Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670
- Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685
- Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700
- Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720
- Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735
- Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750
- Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765
- Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780
- Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800
- Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 43

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 43

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Glu Thr Glu Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

GIY	1 Y I	цец	116	165	PIO	AIA	пр	цеи	170	GIU	пур	ıyı	GIY	175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
			260					265					270	_	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
305	Ala				310					315					320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
	Glu		340					345		_			350	_	
	Ala	355					360					365			
	Pro 370					375					380		_		
385	Thr				390					395					400
Glu	Glu	Ala	Gly	Glu	Arg	Ala	Ala	Leu	Ser	Glu	Arg	Leu	Phe	Ala	Asn

Leu Leu Lys Arg	Leu Glu	Gly	Glu	Glu	Arg	Leu	Leu	Trp	Leu	Tyr	Arg
420				425					430		

- Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445
- Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460
- Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495
- Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys
 500 505 510
- Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525
- Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540
- Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560
- Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575
- Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590
- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 44

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 44

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 . Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 280 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn 405 415 Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg 420 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Gln Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 520 Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590 Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 630 635 Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 45

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 45

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 ` 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly	Tyr	Lys	Ala	Gly 85	Arg	Ala	Pro	Thr	Pro 90	Glu	Asp	Phe	Pro	Arg 95	Gln
Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Leu	Ala 110	Arg	Leu
Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 150	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
				245	Leu				250		_			255	
			260		Arg			265					270		
		275			Glu		280					285			
	290				Ala	295					300				
305					Phe 310					315					320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg 420 425 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 475 480 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys 500 Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser

550

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val

		595					600					605			
Ala	Leu 610	Asp	Tyr	Ser	Gln	Ile 615	Glu	Leu	Arg	Val	Leu 620	Ala	His	Leu	Ser
Gly 625	Asp	Glu	Asn	Leu	Ile 630	Arg	Val	Phe	Gln	Glu 635	Gly	Arg	Asp	Ile	His
Thr	Glu	Thr	Ala	Ser 645	Trp	Met	Phe	Gly	Val 650	Pro	Arg	Glu	Ala	Val 655	Asp
Pro	Leu	Met	Arg 660	Arg	Ala	Ala	Lys	Thr 665	Ile	Asn	Phe	Gly	Val 670	Leu	Туг
Gly	Met	Ser 675	Ala	His	Arg	Leu	Ser 680	Gln	Glu	Leu	Ala	Ile 685	Pro	Tyr	Glu
Glu	Ala 690	Gln	Ala	Phe	Ile	Glu 695	Arg	Tyr	Phe	Gln	Ser 700	Phe	Pro	Lys	Val
Arg 705	Ala	Trp	Ile	Glu	Lys 710	Thr	Leu	Glu	Glu	Gly 715	Arg	Arg	Arg	Gly	Туг 720
Val	Glu	Thr	Leu	Phe 725	Gly	Arg	Arg	Arg	Tyr 730	Val	Pro	Asp	Leu	Glu 735	Ala
Arg	Val	Lys	Ser 740	Val	Arg	Glu	Ala	Ala 745	Glu	Arg	Met	Ala	Phe 750	Asn	Met
Pro	Val	Gln 755	Gly	Thr	Ala	Ala	Asp 760	Leu	Met	Lys	Leu	Ala 765	Met	Val	Lys

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 46

<211> 839

** <212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 46

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

FLO	Asp	GIII	180	AIA	Asp	TYT	Arg	185	neu	1111	GIY	Asp	190	per	ASL
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Let
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asr
Leu	Leu	Lvs	Ara	Leu	Glu	Glv	Glu	Glu	Ara	Leu	Leu	Tro	Leu	Tvr	Arc

- Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445
- Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460
- Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly
 465 470 475 480
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485
 490
 495
- Asp Glu Leu Arg Leu Pro Lys Ile Asn Lys Thr Lys Lys Thr Gly Lys
 500 505 510
- Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525
- Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540
- Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560
- Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575
- Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590
- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655
- Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met
740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 47

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 47

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 250

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala

- Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285
- Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 290 295 300
- Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 315 320
- Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335
- Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 350
- Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 365
- Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 380
- Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 385 390 395 400
- Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn
 405
 415
- Leu Leu Lys Arg Leu Glu Glu Glu Glu Arg Leu Leu Trp Leu Tyr Arg
 420 425 430
- Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445
- Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 450 460
- Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495
- Asp Glu Leu Arg Ile Pro Lys Ile Lys Lys Thr His Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 535 Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 600 605 Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 70Š 715 720 Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 48

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 48

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu

- Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125
- Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140
- Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160
- Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175
- Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190
- Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205
- Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220
- Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240
- Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255
- Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 265 270
- Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285
- Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 290 295 300
- Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 315 320
- Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335
- Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 350

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu 355 360 365 Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser 370 Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 440 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 560 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Gly Trp Leu Leu Val

595

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 49

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 49

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

1 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn	Leu	Pro 195	Gly	Val	Lys	Gly	11e 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe ,	Ala 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg
Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

·His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Leu Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 535 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val

690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys
755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 50

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 50

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys	GIY	Leu 35	Thr	Thr	Ser	Arg	Gly 40	Glu	Pro	Val	Gln	Ala 45	Val	Tyr	Gly
Phe	Ala 50	Lys	Ser	Leu	Leu	Lys 55	Ala	Leu	Lys	Glu	Asp 60	Gly	Tyr	Lys	Ala
Val 65	Phe	Val	Val	Phe	Asp 70	Ala	Lys	Ala	Pro	Ser 75	Phe	Arg	His	Glu	Ala 80
Tyr	Glu	Ala	Tyr	Lys 85	Ala	Gly	Arg	Ala	Pro 90	Thr	Pro	Glu	Asp	Phe 95	Pro
Arg	Gln	Leu	Ala 100	Leu	Ile	Lys	Glu	Leu 105	Val	Asp	Leu	Leu	Gly 110	Phe	Thr
Arg	Leu	Glu 115	Val	Pro	Gly	Tyr	Glu 120	Ala	Asp	Asp	Val	Leu 125	Ala	Thr	Leu
Ala	Lys 130	Lys	Ala	Glu	Lys	Glu 135	Gly	Tyr	Glu	Val	Arg 140	Ile	Leu	Thr	Ala
Asp 145	Arg	Asp	Leu	Tyr	Gln 150	Leu	Val	Ser	Asp	Arg 155	Val	Ala	Val	Leu	His 160
Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Arg	Gly	Val	Arg 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu

Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg. Pro Glu Pro Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Gly Gly Arg Val His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu 370 375 Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly 385 390 Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu 405 His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp 420 425 Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met 435 Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser 450 455 Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Val Phe Arg Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg

Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys

505

500

- Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 555 Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 585 Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 615 His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 640 Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650 Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710
- Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp
 725 730 735
- Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750
- Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765
- Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835

<210> 51

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 51

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr
100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

АІА	130	пуѕ	Ala	GIU	пув	135	GIY	ıyı	GIU	Val	140	iie	ьеи	Inr	Ата
Asp 145	Arg	Asp	Leu	Tyr	Gln 150	Leu	Val	Ser	Asp	Arg 155	Val	Ala	Val	Leu	His 160
Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Tyr 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
Leu	Asp	Leu	Val	Pro	Gly	Asp	Asp	Pro	Met	Leu	Leu	Ala	Tyr	Leu	Leu

Asp 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Ala 395	Arg	Arg	Tyr	Gly	Gly 400

- Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu 405 410 415
- His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Glu Lys Leu Leu Trp 420 425 430
- Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met 435 440 445
- Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser 450 460
- Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg 465 470 475 480
- Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg 485 490 495
- Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys 500 505 510
- Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu 515 520 525
- Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 530 540
- Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 545 550 555 560
- Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 570 575
- Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 590
- Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp 595 600 605
- Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 635 640

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp 725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835 840

<210> 52

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 52

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro 180 185 190

Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Arg Glu Lys Thr Ala Leu 195 200 205

Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Сув	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Asp 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Gl _, u	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His 435	Glu	Val	Glu	Lys	Pro 440	Leu	Ser	Arg	Val	Leu 445	Ala	His	Met
Glu	Ala	Thr	Gly	Val	Arg	Arg	Asp	Val	Ala	Tyr	Leu	Gln	Ala	Leu	Ser

465	Giu	Leu	Ala	GIU	470	116	Arg	Arg	Leu	475	Giu	GIU	Val	Pne	480
Leu	Ala	Gly	His	Pro 485	Phe	Asn	Leu	Asn	Ser 490	Arg	Asp	Gln	Leu	Glu 495	Arg
Val	Leu	Phe	Asp 500	Glu	Leu	Arg	Leu	Pro 505	Ala	Leu	Gly	Lys	Thr 510	Gln	Lys
Thr	Gly	Lys 515	Arg	Ser	Thr	Ser	Ala 520	Ala	Val	Leu	Glu	Ala 525	Leu	Arg	Glu
Ala	His 530	Pro	Ile	Val	Glu	Lys 535	Ile	Leu	Gln	His	Arg 540	Glu	Leu	Thr	Lys
Leu 545	Lys	Asn	Thr	Tyr	Val 550	Asp	Pro	Leu	Pro	Ser 555	Leu	Val	His	Pro	Arg 560
Thr	Gly	Arg	Leu	His 565	Thr	Arg	Phe	Asn	Gln 570	Thr	Ala	Thr	Ala	Thr 575	Gly
Arg	Leu	Ser	Ser 580	Ser	Asp	Pro	Asn	Leu 585	Gln	Asn	Ile	Pro	Val 590	Arg	Thr
Pro	Leu	Gly 595	Gln	Arg	Ile	Arg	Arg 600	Ala	Phe	Val	Ala	Glu 605	Ala	Gly	Trp
Ala	Leu 610	Val	Ala	Leu	Asp	Tyr 615	Ser	Gln	Ile	Glu	Leu 620	Arg	Val	Leu	Ala
His 625	Leu	Ser	Gly	Asp	Glu 630	Asn	Leu	Ile	Arg	Val 635	Phe	Gln	Glu	Gly	Lys 640
				645	Thr				650					655	
			660		Met			665					670		
		675			Ser		680					685			
	690				Val	695					700				
Pro	Lys	Val	Arg	Ala	Trp	Ile	Glu	Lys	Thr	Leu	Glu	Glu	Gly	Arg	Lys

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp
725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val Ala Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835 840

<210> 53

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 53

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala	Lys 50	Ser	Leu	Leu	Lys	Ala 55	Leu	Lys	Glu	Asp	Gly 60	Asp	Ala	Val	Ile
Val 65	Val	Phe	Asp	Ala	Lys 70	Ala	Pro	Ser	Phe	Arg 75	His	Glu	Ala	Tyr	Gly 80
Gly	Tyr	Lys	Ala	Gly 85	Arg	Ala	Pro	Thr	Pro 90	Glu	Asp	Phe	Pro	Arg 95	Gln
Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Phe	Thr 110	Arg	Leu
Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 150	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu

305	Ala	FILE	vai	Giy	310	vai	цец	Ser	Arg	315	GIU	PIO	Mec	irb	320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg
Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Val
Ala 465	Glu	Glu	Ile	Ala	Arg 470	Leu	Glu	Ala	Glu	Val 475	Phe	Arg	Leu	Ala	Gly 480
His	Pro	Phe	Asn	Leu 485	Asn	Ser	Arg	Asp	Gln 490	Leu	Glu	Arg	Val	Leu 495	Phe
Asp	Glu	Leu	Arg 500	Leu	Pro	Lys	Leu	Lys 505	Lys	Thr	Lys	Lys	Thr 510	GĺA	Lys
		515			Ala		520					525			
Ile	Val 530	Glu	Lys	Ile	Leu	Gln 535	Tyr	Arg	Glu	Leu	Thr 540	Lys	Leu	Lys	Ser
Thr	Tyr	Ile	Asp	Pro	Leu	Pro	Asp	Leu	Ile	His	Pro	Arg	Thr	Gly	Arg

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800 Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 54

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 54

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu
1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Glu Thr Glu Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

145	Leu	Tyr	Gin	ьeu	150	ser	Asp	Arg	iie	H15 155	vai	ьeu	HIS	Pro	160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn	Thr	Thr	Pro	Glu	Gly	Val	Ala	Arg	Arq	Tyr	Gly	Gly	Glu	Trp	Thr

Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn 405 410 415

Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg
420 425 430

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460

Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495

Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys 500 505 510

Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 635 635

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 695 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys

825

830

Glu His His His His His 835

820

<210> 55

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 55

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Asn Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

225	гÀг	Pro	Ala	11e	230	Glu	ьys	IIe	Leu	A1a 235	HIS	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	.Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg
Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Val
Ala 465	Glu	Glu	Ile	Ala	Arg 470	Leu	Glu	Ala	Glu	Val 475	Phe	Arg	Leu	Ala	Gly 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495

Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys 500 505 510

Arg Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 56

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 56

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val 65	Val	Phe	Asp	Ala	Lys 70	Ala	Pro	Ser	Phe	Arg 75	His	Glu	Ala	Tyr	Gly 80
Gly	Tyr	Lys	Ala	Gly 85	Arg	Ala	Pro	Thr	Pro 90	Glu	Asp	Phe	Pro	Arg 95	Gln
Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Phe	Thr 110	Arg	Leu
Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 150	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Gln 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe	Val	Leu	Ser	Arg	Lys	Glu	Pro	Met	Trp	Ala

Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg
Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Val
Ala 465	Glu	Glu	Ile	Ala	Arg 470	Leu	Glu	Ala	Glu	Val 475	Phe	Arg	Leu	Ala	Gly 480
His	Pro	Phe	Asn	Leu 485	Asn	Ser	Arg	Asp	Gln 490	Leu	Glu	Arg	Val	Leu 495	Phe
Asp	Glu	Leu	Arg 500	Leu	Pro	Lys	Leu	Lys 505	Lys	Thr	Lys	Lys	Thr 510	Gly	Lys
Arg	Ser	Ser 515	Ser	Ala	Ala	Val	Leu 520	Glu	Ala	Leu	Arg	Glu 525	Ala	His	Pro
Ile	Val 530	Glu	Lys	Ile	Leu	Gln 535	Tyr	Arg	Glu	Leu	Thr 540	Lys	Leu	Lys	Ser

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser

ser	ser	Asp	Pro	Asn	ьeu	GIn	Asn	шe	Pro	vai	Arg	Thr	Pro	Leu	Gly
			580					585					590		_

- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655
- Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670
- Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685
- Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700
- Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720
- Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735
- Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750
- Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765
- Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780
- Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800
- Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 57

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 57

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

GI	У Т	yr 1	Leu	IIe	165	Pro	Ala	Trp	Leu	17p	GIU	гуѕ	Tyr	GIY	ьеи 175	Arg
Pr	o As	sp (Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
As	n Le		Pro 195	Gly	Val	Lys	Gly	Met 200	Gly	Glu	Lys	Thr	Gly 205	Arg	Lys	Leu
Le		lu (10	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Le 22		ys 1	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Ly	s Le	eu :	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Va	.l As	sp 1	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Ph	e Le		Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Le		lu 8 90	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
G1 30		la 1	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
As	p Le	eu 1	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pr	o G	lu 1	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Le	u A		Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pr		ro (70	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
As 38		hr '	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Gl	u G	lu i	Ala	Gly	Glu	Arg	Ala	Ala	Leu	Ser	Glu	Arg	Leu	Phe	Ala	Asn

- Leu Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg 420 425 430
- Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445
- Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 460
- Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 490 495
- Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys 500 505 510
- Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525
- Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540
- Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560
- Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575
- Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590
- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Glý Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 58

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 58

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe
35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Asn Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Prọ	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg
Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Leu	Asp	Val	Ala 455	Tyr	Leu	Arg	Ala	Leu 460	Ser	Leu	Glu	Val
Ala 465	Glu	Glu	Ile	Ala	Arg 470	Leu	Glu	Ala	Glu	Val 475	Phe	Arg	Leu	Ala	Gly 480
His	Pro	Phe	Asn	Leu 485	Asn	Ser	Arg	Asp	Gln 490	Leu	Glu	Arg	Val	Leu 495	Phe

Asp	Glu	Leu	Arg 500	Leu	Pro	Lys	Leu	Lys 505	Lys	Thr	Lys	Lys	Thr 510	Gly	Lys
Arg	Ser	Ser 515	Ser	Ala	Ala	Val	Leu 520	Glu	Ala	Leu	Arg	Glu 525	Ala	His	Pro
Ile	Val 530	Glu	Lys	Ile	Leu	Gln 535	Tyr	Arg	Glu	Leu	Thr 540	Lys	Leu	Lys	Ser
Thr 545	Tyr	Ile	Asp	Pro	Leu 550	Pro	Asp	Leu	Ile	His 555	Pro	Arg	Thr	Gly	Arg 560
Leu	His	Thr	Arg	Phe 565	Asn	Gln	Thr	Ala	Thr 570	Ala	Thr	Gly	Arg	Leu 575	Ser
Ser	Ser	Asp	Pro 580	Asn	Leu	Gln	Asn	Ile 585	Pro	Val	Arg	Thr	Pro 590	Leu	Gly
Gln	Arg	Ile 595	Arg	Arg	Ala	Phe	Ile 600	Ala	Glu	Glu	Gly	Trp 605	Leu	Leu	Val
Ala	Leu 610	Asp	Tyr	Ser	Gln	Ile 615	Glu	Leu	Arg	Val	Leu 620	Ala	His	Leu	Ser
Gly 625	Asp	Glu	Asn	Leu	Ile 630	Arg	Val	Phe	Gln	Glu 635	Gly	Arg	Asp	Ile	His 640
Thr	Glu	Thr	Ala	Ser 645	Trp	Met	Phe	Gly	Val 650	Pro	Arg	Glu	Ala	Val 655	Asp
Pro	Leu	Met	Arg 660	Arg	Ala	Ala	Lys	Thr 665	Ile	Asn	Phe	Gly	Val 670	Leu	Tyr
Gly	Met	Ser 675	Ala	His	Arg	Leu	Ser 680	Gln	Glu	Leu	Ala	Ile 685	Pro	Tyr	Glu
Glu	Ala 690	Gln	Ala	Phe	Ile	Glu 695	Arg	Tyr	Phe	Gln	Ser 700	Phe	Pro	Lys	Val
Arg 705	Ala	Trp	Ile	Glu	Lys 710	Thr	Leu	Glu	Glu	Gly 715	Arg	Arg	Arg	Gly	Tyr 720
Val	Glu	Thr	Leu	Phe 725	Gly	Arg	Arg	Arg	Tyr 730	Val	Pro	Asp	Leu	Glu 735	Ala

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210> 59

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 59

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

СТУ	Tyr	ьуs	Ala	85 85	Arg	АТА	PIO	inr	90	GIU	Asp	Pne	Pro	95	GIN
Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Phe	Thr 110	Arg	Leu
Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 150	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Pro	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
	290					295					300				Glu
305	Ala				310					315					320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn Leu Leu Lys Arg Leu Glu Glu Glu Glu Arg Leu Leu Trp Leu Tyr Arg 420 425 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 475 480 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys 500 505 Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 555 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly

- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 635 635
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655
- Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670
- Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685
- Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 700
- Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720
- Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735
- Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750
- Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765
- Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780
- Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800
- Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815
- Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 60

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 60

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Vai Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175 Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 Val Asp Phe Ala Lys Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 265 Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 290 295 Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala Asp Leu Leu Ala Leu Ala Ala Arg Gly Gly Arg Val His Arg Ala Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 340 345 Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 390 Glu Glu Ala Gly Glu Arq Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn Leu Leu Lys Arg Leu Glu Glu Glu Glu Arg Leu Leu Trp Leu Tyr Arg

- Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 445
- Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460
- Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480
- His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
 485 490 495
- Asp Glu Leu Arg Leu Pro Lys Leu Lys Lys Thr Lys Lys Thr Gly Lys 500 505 510
- Arg Ser Ser Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525
- Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540
- Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560
- Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575
- Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590
- Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605
- Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620
- Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640
- Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
 645 650 655
- Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Ala Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His 835

<210> 61

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 61

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu

10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu
100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205

Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220

Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240

Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255

Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala

Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Ala	Asp	Pro	Leu 340	Ala	Gly	Leu	Lys	Asp 345	Leu	Lys	Glu	Val	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ala	Val	Leu 360	Ala	Ser	Arg	Glu	Gly 365	Leu	Asp	Leu
Val	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Asp	Ala	Ala	His 405	Arg	Ala	Leu	Leu	Ser 410	Glu	Arg	Leu	His	Arg 415	Asn
Leu	Leu	Lys	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Lys	Leu	Leu	Trp	Leu 430	Tyr	His
Glu	Val	Glu 435	Lys	Pro	Leu	Ser	Arg 440	Val	Leu	Ala	His	Met 445	Glu	Ala	Thr
Gly	Val 450	Arg	Arg	Asp	Val	Ala 455	Tyr	Leu	Gln	Ala	Leu 460	Ser	Leu	Glu	Leu
Ala 465	Glu	Glu	Ile	Arg	Arg 470	Leu	Glu	Glu	Glu	Val 475	Phe	Arg	Leu	Ala	Gly 480
His	Pro	Phe	Asn	Leu 485	Asn	Ser	Arg	Asp	Gln 490	Leu	Glu	Arg	Val	Leu 495	Phe
Asp	Glu	Leu	Arg 500	Leu	Pro	Ala	Leu	Lys 505	Lys	Thr	Lys	Lys	Thr 510	Gly	Lys

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525 Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn 530 535 Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 570 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val 600 Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr 705 Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn Ala 725 Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val 785 790 795 800

Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Gly His His His His His 835

<210> 62

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 62

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr

Arg	Leu	Glu 115	Val	Pro	Gly	Tyr	Glu 120	Ala	Asp	Asp	Val	Leu 125	Ala	Thr	Leu
Ala	Lys 130	Lys	Ala	Glu	Lys	Glu 135	Gly	Tyr	Glu	Val	Arg 140	Ile	Leu	Thr	Ala
Asp 145	Arg	Asp	Leu	Tyr	Gln 150	Leu	Val	Ser	Asp	Arg 155	Val	Ala	Val	Leu	His 160
Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val

His Arg Ala Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly 355 360 Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly 390 400 Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn Leu Leu Lys Arg Leu Glu Glu Glu Arg Leu Leu Trp Leu Tyr Arg Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met 440 Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg · Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Lys Lys Thr Gln Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu 515 520 525 Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys 530 Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg 545 560 Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 575 Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp 595 600

Leu Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg 625 630 635 640

Asp Ile His Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly
660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp
725 730 735

Leu Glu Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu 770 775 780

Leu Gln Val Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala 785 790 795 800

Glu Ala Val Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Glu His His His His His His 835 840

<210> 63

<211> 835

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 63

Met Glu Phe Thr Pro Leu Phe Asp Leu Glu Glu Pro Pro Lys Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Tyr Ala Leu 20 25 30

Ser Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe 35 40 45

Ala Arg Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Gln Ala Val Val 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu 65 70 75 80

Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Val Lys Arg Leu Val Asp Leu Leu Gly Leu Val Arg Leu
100 105 110

Glu Ala Pro Gly Tyr Glu Ala Asp Asp Val Leu Gly Thr Leu Ala Lys 115 120 125

Lys Ala Glu Arg Glu Gly Met Glu Val Arg Ile Leu Thr Gly Asp Arg 130 135 140

Asp Phe Phe Gln Leu Leu Ser Glu Lys Val Ser Val Leu Leu Pro Asp 145 150 155 160

Gly Thr Leu Val Thr Pro Lys Asp Val Gln Glu Lys Tyr Gly Val Pro 165 170 175 .

Pro Glu Arg Trp Val Asp Phe Arg Ala Leu Thr Gly Asp Arg Ser Asp 180 185 190

Asn	Ile	Pro 195	GIY	Val	Ala	Gly	11e 200	Gly	Glu	Lys	Thr	Ala 205	Leu	Arg	Leu
Leu	Ala 210	Glu	Trp	Gly	Ser	Val 215	Glu	Asn	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Val 225	Lys	Pro	Asp	Ser	Leu 230	Arg	Arg	Lys	Ile	Glu 235	Ala	His	Leu	Glu	Asp 240
Leu	His	Leu	Ser	Leu 245	Asp	Leu	Ala	Arg	Ile 250	Arg	Thr	Asp	Leu	Pro 255	Leu
Glu	Val	Asp	Phe 260	Lys	Ala	Leu	Arg	Arg 265	Arg	Thr	Pro	Asp	Leu 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Glu	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Gly	Gly	Glu 295	Lys	Pro	Arg	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Leu	Leu 315	Ser	Arg	Lys	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Leu	Ala	Leu	Ala	Ala 330	Ala	Ser	Glu	Gly	Arg 335	Val
His	Arg	Ala	Thr 340	Ser	Pro	Val	Glu	Ala 345	Leu	Ala	Asp	Leu	Lys 350	Glu	Ala
Arg	Gly	Phe 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Leu 365	Arg	Glu	Gly
Val	Ala 370	Leu	Asp	Pro	Thr	Asp 375	Asp	Pro	Leu	Leu	Val 380	Ala	Tyr	Leu	Leu
Asp 385	Pro	Ala	Asn	Thr	His 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Phe	Thr	Glu	Asp 405	Ala	Ala	Glu	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
			420		Lys			425					430		
Gln	Glu	Val 435	Glu	Arg	Pro	Leu	Ser	Arg	Val	Leu	Ala	His	Met	Glu	Ala

Arg Gly Val Arg Leu Asp Val Pro Leu Leu Glu Ala Leu Ser Phe Glu 455 Leu Glu Lys Glu Met Glu Arg Leu Glu Gly Glu Val Phe Arg Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Gly Leu Thr Pro Val Gly Arg Thr Gln Lys Thr Gly Lys Arg Ser Thr Ala Gln Gly Ala Leu Glu Ala Leu Arg Gly Ala His Pro Ile Val Glu Leu Ile Leu Gln Tyr Arg Glu Leu Ser Lys Leu Lys 530 535 Ser Thr Tyr Leu Asp Pro Leu Pro Arg Leu Val His Pro Arg Thr Gly 545 550 560 Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu 565 Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu 580 585 Gly Gln Arg Ile Arg Lys Ala Phe Val Ala Glu Glu Gly Trp Leu Leu 600 Leu Ala Ala Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu 610 615 Ser Gly Asp Glu Asn Leu Lys Arg Val Phe Arg Glu Gly Lys Asp Ile 630 His Thr Glu Thr Ala Ala Trp Met Phe Gly Leu Asp Pro Ala Leu Val Asp Pro Lys Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Gly Ile Asp Tyr Lys Glu Ala Glu Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys 690 695 700

Val Arg Ala Trp Ile Glu Arg Thr Leu Glu Glu Gly Arg Thr Arg Gly 705 710 715 720

Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Ala 725 730 735

Ser Arg Val Arg Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn 740 745 750

Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Ile Ala Met Val 755 760 765

Lys Leu Phe Pro Arg Leu Lys Pro Leu Gly Ala His Leu Leu Gln 770 780

Val His Asn Glu Leu Val Leu Glu Val Pro Glu Asp Arg Ala Glu Glu 785 790 795 800

Ala Lys Ala Leu Val Lys Glu Val Met Glu Asn Ala Tyr Pro Leu Asp 805 810 815

Val Pro Leu Glu Val Glu Val Gly Val Gly Arg Asp Trp Leu Glu Ala 820 825 830

Lys Gln Asp 835

<210> 64

<211> 832

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 64

Met Glu Phe Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 120 Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu Tyr Gln Leu Leu Ser Glu Arg Ile Ser Ile Leu His Pro Glu Gly Tyr Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly Leu Lys Pro Ser Gln Trp Val Asp Tyr Arg Ala Leu Ala Gly Asp Pro Ser Asp Asn Ile Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Ala Lys Leu Ile Arg 195 200 205 Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys His Leu Glu Gln Val Lys 210 Pro Ala Ser Val Arg Glu Lys Ile Leu Ser His Met Glu Asp Leu Lys 225 230 240 Leu Ser Leu Glu Leu Ser Arg Val His Thr Asp Leu Leu Gln Val 245 250 255 Asp Phe Ala Arg Arg Glu Pro Asp Arg Glu Gly Leu Lys Ala Phe

Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu

280

275

Glu	Ser 290	Pro	Val	Ala	Ala	Glu 295	Glu	Ala	Pro	Trp	Pro 300	Pro	Pro	Glu	Gly
Ala 305	Phe	Val	Gly	Tyr	Val 310	Leu	Ser	Arg	Pro	Glu 315	Pro	Met	Trp	Ala	Glu 320
Leu	Asn	Ala	Leu	Ala 325	Ala	Ala	Trp	Glu	Gly 330	Arg	Val	Tyr	Arg	Ala 335	Glu
Asp	Pro	Leu	Glu 340	Ala	Leu	Arg	Gly	Leu 345	Gly	Glu	Val	Arg	Gly 350	Leu	Leu
Ala	Lys	Asp 355	Leu	Ala	Val	Leu	Ala 360	Leu	Arg	Glu	Gly	Ile 365	Ala	Leu	Ala
Pro	Gly 370	Asp	Asp	Pro	Met	Leu 375	Leu	Ala	Tyr	Leu	Leu 380	Asp	Pro	Ser	Asn
Thr 385	Ala	Pro	Glu	Gly	Val 390	Ala	Arg	Arg	Tyr	Gly 395	Gly	Glu	Trp	Thr	Glu 400
Glu	Ala	Gly	Glu	Arg 405	Ala	Leu	Leu	Ser	Glu 410	Arg	Leu	Tyr	Ala	Ala 415	Leu
Leu	Lys	Arg	Leu 420	Lys	Gly	Glu	Glu	Arg 425	Leu	Leu	Trp	Leu	Tyr 430	Glu	Glu
Val	Glu	Lys 435	Pro	Leu	Ser	Arg	Val 440	Leu	Ala	His	Met	Glu 445	Ala	Thr	Gly
Val	Arg 450	Leu	Asp	Val	Ala	Tyr 455	Leu	Lys	Ala	Leu	Ser 460	Leu	Glu	Val	Glu
Ala 465	Glu	Ile	Arg	Arg	Phe 470	Glu	Glu	Glu	Val	His 475	Arg	Leu	Ala	Gly	His 480
Pro	Phe	Asn	Leu	Asn 485	Ser	Arg	Asp	Gln	Leu 490	Glu	Arg	Val	Ile	Phe 495	Asp
Glu	Leu	Gly	Leu 500	Pro	Ala	Ile	Gly	Lys 505	Thr	Gln	Lys	Thr	Gly 510	Lys	Arg

Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile 515 520 525

Val Asp Arg Ile Leu Gln Tyr Arg Glu Leu Ser Lys Leu Lys Gly Thr

Tyr 545	Ile	Asp	Pro	Leu	Pro 550	Ala	Leu	Val	Pro 555	Lys	Thr	Asn	Arg	Leu 560

- His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser 565 570 575
- Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln 580 585 590
- Arg Ile Arg Arg Ala Phe Val Ala Glu Glu Gly Trp Arg Leu Val Val 595 600 605
- Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly 610 620
- Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Gln Asp Ile His Thr 625 630 635 640
- Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Ser 645 650 655
- Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly 660 665 670
- Met Ser Ala His Arg Leu Ser Gly Glu Leu Ala Ile Pro Tyr Glu Glu 675 680 685
- Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Tyr Pro Lys Val Arg 690 695 700
- Ala Trp Ile Glu Lys Thr Leu Ala Glu Gly Arg Glu Arg Gly Tyr Val 705 710 715 720
- Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Ala Ser Arg 725 730 735
- Val Lys Ser Ile Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro $740 \hspace{1cm} 745 \hspace{1cm} 750$
- Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu 755 760 765
- Phe Pro Arg Leu Gln Glu Leu Gly Ala Arg Met Leu Leu Gln Val His 770 780

Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Gln Ala Glu Glu Val Ala 785 790 795 800

Gln Glu Ala Lys Arg Thr Met Glu Glu Val Trp Pro Leu Lys Val Pro 805 810 815

Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys Ala 820 825 830

<210> 65

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 65

Met Asn Ser Thr Pro Leu Phe Asp Leu Glu Glu Pro Pro Lys Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Tyr Ala Leu 20 25 30

Ser Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe 35 40 45

Ala Arg Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Gln Ala Val Val 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu 65 70 75 80

Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Val Lys Arg Leu Val Asp Leu Leu Gly Leu Val Arg Leu
100 105 110

Glu Ala Pro Gly Tyr Glu Ala Asp Asp Val Leu Gly Thr Leu Ala Lys 115 120 125

Lys Ala Glu Arg Glu Gly Met Glu Val Arg Ile Leu Thr Gly Asp Arg 130 135 140

145	FIIC	riic	GIII	пец	150	Ser	Giu	пуъ	vai	155	vai	пец	Бец	FIO	160
Gly	Thr	Leu	Val	Thr 165	Pro	Lys	Asp	Val	Gln 170	Glu	Lys	Tyr	Gly	Val 175	Pro
Pro	Glu	Arg	Trp 180	Val	Asp	Phe	Arg	Ala 185	Leu	Thr	Gly	Asp	Arg 190	Ser	Asp
Asn	Ile	Pro 195	Gly	Val	Ala	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Leu	Arg	Leu
Leu	Ala 210	Glu	Trp	Gly	Ser	Val 215	Glu	Asn	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Val 225		Pro	Asp	Ser	Leu 230	Arg	Arg	Lys	Ile	Glu 235	Ala	His	Leu	Glu	Asp 240
Leu	His	Leu	Ser	Leu 245	Asp	Leu	Ala	Arg	Ile 250	Arg	Thr	Asp	Leu	Pro 255	Leu
Glu	Val	Asp	Phe 260	Lys	Ala	Leu	Arg	Arg 265	Arg	Thr	Pro	Asp	Leu 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Glu	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Gly	Gly	Glu 295	Lys	Pro	Arg	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Leu	Leu 315	Ser	Arg	Lys	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Leu	Ala	Leu	Ala	Ala 330	Ala	Ser	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Asp	Pro	Ser	Asn	Thr	Thr	Pro	Glu	Glv	Val	Ala	Ara	Ara	Tvr	Glv	Glv

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu
405 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp
420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met 435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser 450 455 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Lys Lys Thr Lys Lys 500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu 515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 530 535 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp 595 600 605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 635 640

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 . 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp
725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala
740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 775 780

Leu Gln Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835 840

<210> 66

<211> 838

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 66

Met Asn Ser Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val
50 60

Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val 100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu 130 135 140

Tyr Gln Leu Leu Ser Glu Arg Ile Ser Ile Leu His Pro Glu Gly Tyr 145 150 155 160

Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly Leu Lys Pro Ser 165 170 175

Gln Trp Val Asp Tyr Arg Ala Leu Ala Gly Asp Pro Ser Asp Asn Ile 180 185 190

Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Ala Lys Leu Ile Arg 195 200 205

Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys His Leu Glu Gln Val Lys 210 215 220

225	Ala	ser	val	Arg	230	Lys	11e	Leu	ser	H1S 235	Met	GIu	Asp	Leu	Lys 240
Leu	Ser	Leu	Glu	Leu 245	Ser	Arg	Val	His	Thr 250	Asp	Leu	Leu	Leu	Gln 255	Val
Asp	Phe	Ala	Arg 260	Arg	Arg	Glu	Pro	Asp 265	Arg	Glu	Gly	Leu	Lys 270	Ala	Phe
Leu	Glu	Arg 275	Leu	Glu	Phe	Gly	Ser 280	Leu	Leu	His	Glu	Phe 285	Gly	Leu	Leu
Glu	Ser 290	Pro	Val	Ala	Ala	Glu 295	Glu	Ala	Pro	Trp	Pro 300	Pro	Pro	Glu	Gly
Ala 305	Phe	Val	Gly	Tyr	Val 310	Leu	Ser	Arg	Pro	Glu 315	Pro	Met	Trp	Ala	Glu 320
Leu	Asn	Ala	Leu	Ala 325	Ala	Ala	Trp	Gly	Gly 330	Arg	Val	His	Arg	Ala 335	Ala
Asp	Pro	Leu	Ala 340	Gly	Leu	Lys	Asp	Leu 345	Lys	Glu	Val	Arg	Gly 350	Leu	Leu
Ala	Lys	Asp 355	Leu	Ala	Val	Leu	Ala 360	Ser	Arg	Glu	Gly	Leu 365	Asp	Leu	Val
Pro	Gly 370	Asp	Asp	Pro	Met	Leu 375	Leu	Ala	Tyr	Leu	Leu 380	Asp	Pro	Ser	Asn
Thr 385	Thr	Pro	Glu	Gly	Val 390	Ala	Arg	Arg	Tyr	Gly 395	Gly	Glu	Trp	Thr	Glu 400
Asp	Ala	Ala	His	Arg 405	Ala	Leu	Leu	Ser	Glu 410	Arg	Leu	His	Arg	Asn 415	Leu
Leu	Lys	Arg	Leu 420	Glu	Gly	Glu	Glu	Lys 425	Leu	Leu	Trp	Leu	Tyr 430	His	Glu
Val	Glu	Lys 435	Pro	Leu	Ser	Arg	Val 440	Leu	Ala	His	Met	Glu 445	Ala	Thr	Gly
Val	Arg 450	Arg	Asp	Val	Ala	Tyr 455	Leu	Gln	Ala	Leu	Ser 460	Leu	Glu	Leu	Ala
Glu 465	Glu	Ile	Arg	Arg	Leu 470	Glu	Glu	Glu	Val	Phe 475	Arg	Leu	Ala	Gly	His 480

Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp 485 Glu Leu Arg Leu Pro Ala Leu Lys Lys Thr Lys Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser 565 570 Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln 580 Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu Val Ala 595 Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly 615 Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Pro 645 650 Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu Tyr Gly 660 Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg 695 Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro
740 745 750

Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu 755 760 765

Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala 770 780

Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu Val Ala 785 790 795 800

Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala Val Pro 805 810 815

Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala Lys Gly 820 825 830

His His His His His 835

<210> 67

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 67

Met Asn Ser Thr Pro Leu Phe Asp Leu Glu Glu Pro Pro Lys Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Tyr Ala Leu 20 25 30

Ser Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe 35 40 45

Ala Arg Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Gln Ala Val Val 50 60

Val 65	Vai	Phe	Asp	Ala	Lys 70	Ala	Pro	Ser	Phe	Arg 75	His	Glu	Ala	Tyr	Glu 80
Ala	Tyr	Lys	Ala	Gly 85	Arg	Ala	Pro	Thr	Pro 90	Glu	Asp	Phe	Pro	Arg 95	Gln
Leu	Ala	Leu	Val 100	Lys	Arg	Leu	Val	Asp 105	Leu	Leu	Gly	Leu	Val 110	Arg	Leu
Glu	Ala	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Gly	Thr 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Arg	Glu	Gly	Met 135	Glu	Val	Arg	Ile	Leu 140	Thr	Gly	Asp	Arg
Asp 145	Phe	Phe	Gln	Leu	Leu 150	Ser	Glu	Lys	Val	Ser 155	Val	Leu	Leu	Pro	Asp 160
Gly	Thr	Leu	Val	Thr 165	Pro	Lys	Asp	Val	Gln 170	Glu	Lys	Tyr	Gly	Val 175	Pro
Pro	Glu	Arg	Trp 180	Val	Asp	Phe	Arg	Ala 185	Leu	Thr	Gly	Asp	Arg 190	Ser	Asp
Asn	Ile	Pro 195	Gly	Val	Ala	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Leu	Arg	Leu
Leu	Ala 210	Glu	Trp	Gly	Ser	Val 215	Glu	Asn	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Val 225	Lys	Pro	Asp	Ser	Leu 230	Arg	Arg	Lys	Ile	Glu 235	Ala	His	Leu	Glu	Asp 240
Leu	His	Leu	Ser	Leu 245	Asp	Leu	Ala	Arg	Ile 250	Arg	Thr	Asp	Leu	Pro 255	Leu
Glu	Val	Asp	Phe 260	Lys	Ala	Leu	Arg	Arg 265	Arg	Thr	Pro	Asp	Leu 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Glu	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Gly	Gly	Glu 295	Lys	Pro	Arg	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Leu	Leu 315	Ser	Arg	Lys	Glu	Pro

Met Trp Ala Glu Leu Leu Ala Leu Ala Ala Ser Gly Gly Arg Val His Arg Ala Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly 360 Leu Gly Leu Pro Pro Gly Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu 405 410 415 Phe Ala Asn Leu Leu Lys Arg Leu Glu Glu Glu Arg Leu Leu Trp 420 425 Leu Tyr Arg Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met 435 440 Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser 450 Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg 465 470 Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg 485 490 Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Lys Lys Thr Gln Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg 550 555

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp 595 600 605

Leu Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg 625 630 635 640

Asp Ile His Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp 725 730 735

Leu Glu Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val Ala Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala 785 790 795 800

Glu Ala Val Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro 805 810 815 Leu Ala Val Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Glu His His His His His His 835 840

<210> 68

<211> 838

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 68

Met Asn Ser Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val 50 55 60

Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val
100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu 130 135 140

Tyr Gln Leu Leu Ser Glu Arg Ile Ser Ile Leu His Pro Glu Gly Tyr 145 150 155 160

Leu	Ile	Thr	Pro	Glu 165	Trp	Leu	Trp	Glu	Lys 170	Tyr	Gly	Leu	Lys	Pro 175	Ser
Gln	Trp	Val	Asp 180	Tyr	Arg	Ala	Leu	Ala 185	Gly	Asp	Pro	Ser	Asp 190	Asn	Ile
Pro	Gly	Val 195	Lys	Gly	Ile	Gly	Glu 200	Lys	Thr	Ala	Ala	Lys 205	Leu	Ile	Arg
Glu	Trp 210	Gly	Ser	Leu	Glu	Asn 215	Leu	Leu	Lys	His	Leu 220	Glu	Gln	Val	Lys
Pro 225	Ala	Ser	Val	Arg	Glu 230	Lys	Ile	Leu	Ser	His 235	Met	Glu	Asp	Leu	Lys 240
Leu	Ser	Leu	Glu	Leu 245	Ser	Arg	Val	His	Thr 250	Asp	Leu	Leu	Leu	Gln 255	Val
Asp	Phe	Ala	Arg 260	Arg	Arg	Glu	Pro	Asp 265	Arg	Glu	Gly	Leu	Lys 270	Ala	Phe
Leu	Glu	Arg 275	Leu	Glu	Phe	Gly	Ser 280	Leu	Leu	His	Glu	Phe 285	Gly	Leu	Leu
Glu	Ser 290	Pro	Val	Ala	Ala	Glu 295	Glu	Ala	Pro	Trp	Pro 300	Pro	Pro	Glu	Gly
Ala 305	Phe	Val	Gly	Tyr	Val 310	Leu	Ser	Arg	Pro	Glu 315	Pro	Met	Trp	Ala	Glu 320
Leu	Asn	Ala	Leu	Ala 325	Ala	Ala	Trp	Gly	Gly 330	Arg	Val	His	Arg	Ala 335	Pro
Glu	Pro	Tyr	Lys 340	Ala	Leu	Arg	Asp	Leu 345	Lys	Glu	Ala	Arg	Gly 350	Leu	Leu
Ala	Lys	Asp 355	Leu	Ser	Val	Leu	Ala 360	Leu	Arg	Glu	Gly	Leu 365	Gly	Leu	Pro
Pro	Gly 370	Asp	Asp	Pro	Met	Leu 375	Leu	Ala	Tyr	Leu	Leu 380	Asp	Pro	Ser	Asn
Thr 385	Thr	Pro	Glu	Gly	Val 390	Ala	Arg	Arg	Tyr	Gly 395	Gly	Glu	Trp	Thr	Glu 400
Glu	Ala	Glv	Glu	Ara	Ala	Ala	Lev	Ser	Glu	Ara	Leu	Phe	Ala	Asp	Len

- Leu Lys Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg Glu
 420 425 430
- Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr Gly
 435 440 445
- Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val Ala 450 455 460
- Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly His 465 470 475 480
- Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp 485 490 495
- Glu Leu Gly Leu Pro Ala Ile Lys Lys Thr Gln Lys Thr Gly Lys Arg
 500 505 510
- Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile 515 520 525
- Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser Thr 530 540
- Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg Leu 545 550 555 560
- His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser 565 570 575
- Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln 580 585 590
- Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val Ala 595 600 605
- Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly 610 620
- Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His Thr 625 630 635 640
- Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro 645 650 655

Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly 660 665 670

Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu 675 680 685

Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg 690 695 700

Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr Val 705 710 715 720

Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala Arg 725 730 735

Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro
740 745 750

Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu 755 760 765

Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val Ala 770 780

Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val Ala 785 790 795 800

Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val Pro 805 810 815

Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys Glu 820 825 830

His His His His His 835

<210> 69

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 69 60 atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge caccacctgg cetaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 540 gggtacetea teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 900 agectectee aegagttegg cettetggaa ageceeaagg ceetggagga ggeeeeetgg 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc gatettetgg ceetggeege egeeagggge ggeegegtge acegggeage agacecettg 1020 gcggggctaa aggacctcaa ggaggtccgg ggcctcctcg ccaaggacct cgccgtcttg 1080 gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1140 ctggaccctt cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1200 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc 1260 ctcgagggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1320 gtcctggccc atatggaggc caccggggta cggcgggacg tggcctacct tcaggccctt 1380 tecetggage ttgeggagga gateegeege etegaggagg aggtetteeg ettggeggge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tgctctttga cgagcttagg 1500 ettecegeet tggggaagae geaaaagaea ggeaageget eeaceagege egeggtgetg 1560 gaggccctac gggaggccca ccccatcgtg gagaagatcc tccagcaccg ggagctcacc 1620 aageteaaga acacetaegt ggaceceete ecaageeteg tecaecegag gaegggeege 1680 ctccacaccc gcttcaacca gacggccacg gccacgggga ggcttagtag ctccgacccc 1740 aacctgcaga acateceegt eegeaceeee ttgggecaga ggateegeeg ggeettegtg 1800 gccgaggcgg gttgggcgtt ggtggccctg gactatagcc agatagagct ccgcgtcctc 1860 gcccacctct ccggggacga aaacctgatc agggtcttcc aggaggggaa ggacatccac 1920 1980 acceagaceg caagetggat gtteggegte ceeceggagg cegtggacee cetgatgege 2040 cgggcggcca agacggtgaa cttcggcgtc ctctacggca tgtccgccca taggctctcc caggagettg ceateceeta egaggaggeg gtggeettta tagagegeta ettecaaage 2100 2160 ttccccaagg tgcgggcctg gatagaaaag accctggagg aggggaggaa gcggggctac gtggaaaccc tcttcggaag aaggcgctac gtgcccgacc tcaacgcccg ggtgaagagc 2220 2280 gtcagggagg ccgcggagcg catggccttc aacatgcccg tccagggcac cgccgccgac ctcatgaagc tcgccatggt gaagctcttc ccccgcctcc gggagatggg ggcccgcatg 2340 etectecagg tecacaacga getectectg gaggeeeece aagegeggge egaggaggtg 2400 geggetttgg ccaaggagge catggagaag geetateeee tegeegtgee eetggaggtg 2460 gaggtgggga tgggggagga ctggctttcc gccaagggtc accaccacca ccaccac 2517

<210> 70

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 70 60 atgaatteeg aggegatget teegetettt gaacecaaag geegggteet eetggtggae ggccaccacc tggcctaccg caccttette gccctgaagg gcctcaccac gagccggggc 120 180 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240 tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc 300 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 360 gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc 420 atcotcaceg cegacegega cototaceaa ctegtoteeg acegegtege egtocteeac 480 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag 540 cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag 600 660 ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg 720

gaagacctca	ggctctcctt	ggagctctcc	cgggtgcgca	ccgacctccc	cctggaggtg	780
gacctcgccc	aggggcggga	gcccgaccgg	gaggggctta	gggccttcct	ggagaggctg	840
gagttcggca	gcctcctcca	cgagttcggc	ctcctggagg	ccccgcccc	cctggaggag	900
gccccctggc	ccccgccgga	aggggccttc	gtgggcttcg	tcctctcccg	ccccgagccc	960
atgtgggcgg	agcttaaagc	cctggccgcc	tgcaggggcg	gccgcgtcca	ccgggccccc	1020
gagccttata	aagccctcag	ggacctgaag	gaggcgcggg	ggcttctcgc	caaagacctg	1080
agcgttctgg	ccctgaggga	aggccttggc	ctcccgcccg	gcgacgaccc	catgctcctc	1140
gcctacctcc	tggacccttc	gaacaccacc	cccgaggggg	tggcccggcg	ctacggcggg	1200
gagtggacgg	aggaggcggg	ggagcgggcc	gccctttccg	agaggctctt	cgccaacctg	1260
tgggggaggc	ttgaggggga	ggagaggctc	ctttggcttt	accgggaggt	ggagaggccc	1320
ctttccgctg	tcctggccca	tatggaggcc	acgggggtgc	gcctggacgt	ggcctatctc	1380
agggccttgt	ccctggaggt	ggccgaggag	atcgcccgcc	tcgaggccga	ggtcttccgc	1440
ctggccggcc	accccttcaa	cctcaactcc	cgggaccagc	tggaaagggt	cctctttgac	1500
gagctagggc	ttcccgccat	cggcaagacg	gagaagaccg	gcaagcgctc	caccagcgcc	1560
gccgtcctgg	aggccctccg	cgaggcccac	cccatcgtgg	agaagatcct	gcagtaccgg	1620
gagctcacca	agctgaagag	cacctacatt	gaccccttgc	cggacctcat	ccaccccagg	1680
acgggccgcc	tccacacccg	cttcaaccag	acggccacgg	ccacgggcag	gctaagtagc	1740
tccgatccca	acctccagaa	catccccgtc	cgcaccccgc	ttgggcagag	gatccgccgg	1800
gccttcatcg	ccgaggaggg	gtggctattg	gtggccctgg	actatagcca	gatagagctc	1860
agggtgctgg	cccacctctc	cggcgacgag	aacctgatcc	gggtcttcca	ggaggggcgg	1920
gacatccaca	cggagaccgc	cagctggatg	ttcggcgtcc	cccgggaggc	cgtggacccc	1980
ctgatgcgcc	gggcggccaa	gaccatcaac	ttcggggtcc	tctacggcat	gtcggcccac	2040
cgcctctccc	aggagctagc	catcccttac	gaggaggccc	aggccttcat	tgagcgctac	2100
tttcagagct	tccccaaggt	gcgggcctgg	attgagaaga	ccctggagga	gggcaggagg	2160
cgggggtacg	tggagaccct	cttcggccgc	cgccgctacg	tgccagacct	agaggcccgg	2220
gtgaagagcg	tgcgggaggc	ggccgagcgc	atggccttca	acatgcccgt	ccagggcacc	2280
gccgccgacc	tcatgaagct	ggctatggtg	aagctcttcc	ccaggctgga	ggaaatgggg	2340
gccaggatgc	tccttcaggt	ccacaacgag	ctggtcctcg	aggccccaaa	agagagggcg	2400
gaggccgtgg	cccggctggc	caaggaggtc	atggagggg	tgtatcccct	ggccgtgccc	2460
ctggaggtgg	aggtggggat	aggggaggac	tggctctccg	ccaaggagca	ccaccaccac	2520
caccac						2526

<210> 71 <211> 2517 <212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 71 atgaattcgg ggatgctgcc cctctttgag cccaagggcc gggtcctcct ggtggacggc 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggag 120 180 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacetea teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 840 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 900 agectectee acgagttegg cettetggaa agececaagg ceetggagga ggececetgg cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecagggge ggeegegtge acegggeage agacecettg 1020 gcggggctaa aggacctcaa ggaggtccgg ggcctcctcg ccaaggacct cgccgtcttg 1080 gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1140 ctggaccctt cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1200 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc 1260 ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1320 gtcctggccc atatggaggc caccggggta cggcgggacg tggcctacct tcaggccctt 1380 teeetggage ttgeggagga gateegeege etegaggagg aggtetteeg ettggeggge 1440

caccccttca acctcaactc ccgggaccag ctggaaaggg tgctctttga cgagcttagg 1500 cttcccgcct tggggaagac gcaaaagaca ggcaagcgct ccaccagcgc cgcggtgctg 1560 gaggeeetae gggaggeeea eeceategtg gagaagatee teeageaeeg ggageteaee 1620 aageteaaga acacetaegt ggaceceete ecaageeteg tecaceegag gaegggeege 1680 ctccacaccc gcttcaacca gacggccacg gccacgggga ggcttagtag ctccgacccc 1740 1800 aacctgcaga acatccccgt ccgcaccccc ttgggccaga ggatccgccg ggccttcatc gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 2220 gtggagaccc tetteggeeg eegeegetac gtgeeagace tagaggeeeg ggtgaagage gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340. ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 72

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 72

atgaattegg ggatgetgee cetetttgag eccaagggee gggteeteet ggtggaegge 60 caccacetgg cetacegeae ettecaegee etgaagggee teaceaeag eegggggag 120 ceggtgeagg eggtetaegg ettegeeaag ageeteetea aggeeeteaa ggaggaeggg 180 gaegeggtga tegtggtett tgaegeeaag geeeeteet teegeeaega ggeetaeggg 240 gggtaeaagg egggeeggge ecceaegeeg gaggaettte eeeggeaaet egeeteate 300

aaggagetgg tggaeeteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 480 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag gggtacetea teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 780 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agectectee aegagttegg cettetggaa agececaagg ceetggagga ggeceeetgg 900 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 1020 gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 1200 ctggaccctt cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gtgggggagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggcegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1500 ettecegeca teggeaagae ggagaagaee ggeaageget eeaceagege egeegteetg 1560 gaggecetee gegaggeeea ecceategtg gagaagatee tgeagtaceg ggageteace 1620 aagetgaaga geacetacat tgacecettg eeggacetea teeaceceag gaegggeege 1680 1740 etccacacce gettcaacca gacggccacg gecaegggca ggetaagtag etcegatece aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcgtg 1800 gccgaggcgg gttgggcgtt ggtggccctg gactatagcc agatagagct ccgcgtcctc 1860 gcccacctct ccggggacga aaacctgatc agggtcttcc aggaggggaa ggacatccac 1920 acceagaceg caagetggat gtteggegte ceeeeggagg cegtggacee eetgatgege 1980 cgggcggcca agacggtgaa cttcggcgtc ctctacggca tgtccgccca taggctctcc 2040 caggagettg ccatececta egaggaggeg gtggeettta tagagegeta ettecaaage 2100 ttccccaagg tgcgggcctg gatagaaaag accctggagg aggggaggaa gcggggctac 2160 gtggaaaccc tetteggaag aaggegetae gtgeeegaee teaaegeeeg ggtgaagage 2220 gteagggagg eegeggageg catggeette aacatgeeeg teeagggeae egeegeegae 2280 eteatgaage tegeeatggt gaagetette eeeegeetee gggagatggg ggeeegeatg 2340 eteeteeagg teeacaaega geteeteetg gaggeeeeee aagegeggge egaggaggtg 2400 geggetttgg eeaaggagge eatggagaag geetateeee tegeegtgee eetggaggtg 2460 gaggtgggga tgggggagga etggetttee geeaagggte aecaceaeea ceaceae 2517

<210> 73

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> atgaattegg ggatgetgee cetetttgag eecaagggee gggteeteet ggtggaegge 60 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 180 ceggtgeagg eggtetaegg ettegeeaag ageeteetea aggeeeteaa ggaggaeggg gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacetea teaceegge etggetttgg gaaaagtacg geetgaggee egaceagtgg 540 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg aageteteet gggacetgge caaggtgege acegacetge eeetggaggt ggacttegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agectectee aegagttegg cettetggaa ageceeaagg eeetggagga ggeeeeetgg 900 ccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecagggge ggeegegtge acegggeage agacecettg 1020

gcggggctaa	aggacctcaa	ggaggtccgg	ggcctcctcg	ccaaggacct	cgccgtcttg	1080
gcctcgaggg	aggggctaga	cctcgtgccc	ggggacgacc	ccatgctcct	cgcctacctc	1140
ctggaccctt	cgaacaccac	ccccgagggg	gtggcgcggc	gctacggggg	ggagtggacg	1200
gaggacgccg	cccaccgggc	cctcctctcg	gagaggctcc	atcggaacct	ccttaagcgc	1260
ctcgaggggg	aggagaagct	cctttggctc	taccacgagg	tggaaaagcc	cctctcccgg	1320
gtcctggccc	atatggaggc	cacgggggtg	cgcctggacg	tggcctatct	cagggccttg	1380
tccctggagg	tggccgagga	gatcgcccgc	ctcgaggccg	aggtcttccg	cctggccggc	1440
caccccttca	acctcaactc	ccgggaccag	ctggaaaggg	tcctctttga	cgagctaggg	1500
cttcccgcca	tcggcaagac	ggagaagacc	ggcaagcgct	ccaccagcgc	cgccgtcctg	1560
gaggccctcc	gcgaggccca	ccccatcgtg	gagaagatcc	tgcagtaccg	ggagctcacc	1620
aagctgaaga	gcacctacat	tgaccccttg	ccggacctca	tccaccccag	gacgggccgc	1680
ctccacaccc	gcttcaacca	gacggccacg	gccacgggca	ggctaagtag	ctccgatccc	1740
aacctccaga	acatccccgt	ccgcaccccg	cttgggcaga	ggatccgccg	ggccttcatc	1800
gccgaggagg	ggtggctatt	ggtggccctg	gactatagcc	agatagagct	cagggtgctg	1860
gcccacctct	ccggcgacga	gaacctgatc	cgggtcttcc	aggaggggg	ggacatccac	1920
acggagaccg	ccagctggat	gttcggcgtc	ccccgggagg	ccgtggaccc	cctgatgcgc	1980
cgggcggcca	agaccatcaa	cttcggggtc	ctctacggca	tgtcggccca	ccgcctctcc	2040
caggagctag	ccatccctta	cgaggaggcc	caggccttca	ttgagcgcta	ctttcagagc	2100
ttccccaagg	tgcgggcctg	gattgagaag	accctggagg	agggcaggag	gcgggggtac	2160
gtggagaccc	tcttcggccg	ccgccgctac	gtgccagacc	tagaggcccg	ggtgaagagc	2220
gtgcgggagg	cggccgagcg	catggccttc	aacatgcccg	tccagggcac	cgccgccgac	2280
ctcatgaagc	tggctatggt	gaagctcttc	cccaggctgg	aggaaatggg	ggccaggatg	2340
ctccttcagg	tccacaacga	gctggtcctc	gaggccccaa	aagagagggc	ggaggccgtg	2400
gcccggctgg	ccaaggaggt	catggagggg	gtgtatcccc	tggccgtgcc	cctggaggtg	2460
gaggtgggga	taggggagga	ctggctctcc	gccaaggagc	accaccacca	ccaccac	2517

<210> 74

<211> 2517

<212> DNA

<213> Artificial Sequence

<223> Synthetic

<400> atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 acegeegaca aagacettta ceageteett teegacegea teeaegteet eeaceeegag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agceteetee aegagttegg cettetggaa ageeceaagg ceetggagga ggeeceetgg 900 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 ctggaccctt cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gtgggggagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc caccggggta cggcgggacg tggcctacct tcaggccctt 1380 tecetggage ttgeggagga gateegeege etegaggagg aggtetteeg ettggeggge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tgctctttga cgagcttagg 1500 cttcccgcct tggggaagac gcaaaagaca ggcaagcgct ccaccagcgc cgcggtgctg 1560 gaggecetae gggaggeeca ecceategtg gagaagatee tecageaceg ggageteace 1620 aageteaaga acacetaegt ggaceeete ecaageeteg tecaceegag gaegggeege 1680 ctccacaccc gcttcaacca gacggccacg gccacgggga ggcttagtag ctccgacccc 1740 aacctgcaga acatccccgt ccgcaccccc ttgggccaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 1920 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 2100 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 2220 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc gtgegggagg eggeegageg catggeette aacatgeeeg teeagggeae egeegeegae 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 2400 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 75

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 60 atgaattegg ggatgetgee cetetttgag eecaagggee gggteeteet ggtggaegge 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 acegeegaca aagacettta eeageteett teegacegea teeaegteet eeaceeegag 480 gggtacetea teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660

720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 780 aageteteet gggaeetgge caaggtgege aeegaeetge eeetggaggt ggaettegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agceteetee aegagttegg cettetggaa agceecaagg ceetggagga ggeeceetgg 900 ccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 1020 gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 ctggaccctt cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1200 1260 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1320 gtcctggccc atatggaggc caccggggta cggcgggacg tggcctacct tcaggccctt 1380 tecetggage ttgeggagga gateegeege etegaggagg aggtetteeg ettggeggge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tgctctttga cgagcttagg 1500 cttcccgcct tggggaagac gcaaaagaca ggcaagcgct ccaccagcgc cgcggtgctg 1560 gaggccctac gggaggccca ccccatcgtg gagaagatcc tccagcaccg ggagctcacc 1620 aageteaaga acacetaegt ggaceceete ecaageeteg tecaecegag gaegggeege 1680 etecacacce getteaacca gaeggeeacg gecaegggga ggettagtag etecgaecce 1740 aacctgcaga acatccccgt ccgcaccccc ttgggccaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg eegeegetae gtgeeagace tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagaggcc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517 <210> 76
<211> 2517
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic

<400> 76 atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ceggtgcagg eggtetaegg ettegceaag ageeteetea aggeceteaa ggaggaeggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgcctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tecgaccgca tecacgtect ecaccecgag 480 gggtacetca teacecegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agcctcctcc acgagttcgg ccttctggaa agccccaagg ccctggagga ggccccctgg 900 ecceggegg aaggggeett egtgggettt gtgettteee geaaggagee catgtgggee 960 gatcttctgg ccctggccgc cgccaggggc ggccgcgtgc accgggcagc agaccccttg 1020 gcggggctaa aggacctcaa ggaggtccgg ggcctcctcg ccaaggacct cgccgtcttg 1080 gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1140 ctggaccett cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gtgggggagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tccctggagg tggccgagga gatcgcccgc ctcgaggccg aggtcttccg cctggccggc 1440

1500 caccecttca acctcaactc cegggaccag ctggaaaggg teetetttga egagetaggg 1560 ettecegeca teggeaagae ggagaagaee ggeaageget ceaceagege egeegteetg gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagetgaaga geacetacat tgacecettg eeggacetea tecaceceag gaegggeege 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 geceacetet eeggegaega gaacetgate egggtettee aggaggggeg ggacatecae 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 egggeggeca agaceateaa etteggggte etetaeggea tgteggeeca eegeetetee 2040 caggagetag ccatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 2160 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac gtggagaccc tetteggeeg eegeegetac gtgeeagace tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 77

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 77

atgaattccg aggcgatgct teegetett gaacccaaag geegggteet eetggtggae 60 ggccaccacc tggcctaccg caccttette geeetgaagg geeteaccae gagcegggge 120 gaaccggtge aggeggteta eggettegee aagageetee teaaggeeet gaaggaggae 180 gggtacaagg eegtettegt ggtetttgae geeaaggeee eeteetteeg eeacgaggee 240 tacgaggeet acaaggegg gagggeeeeg acceeegagg actteeeeeg geagetegee 300

360 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc 420 atceteaceg cegacegega cetetaceaa etegteteeg acegegtege egteeteeae 480 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag 540 600 cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 720 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg gaagacetea ggeteteett ggagetetee egggtgegea eegaceteee eetggaggtg 780 gacctegece aggggeggga gecegacegg gaggggetta gggeetteet ggagaggetg 840 gagttcggca gcctcctcca cgagttcggc ctcctggagg cccccgcccc cctggaggag 900 gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc 960 atgtgggegg agettaaage eetggeegee tgeaggggeg geegegtgea eegggeagea 1020 gacccettgg eggggetaaa ggaceteaag gaggteeggg geeteetege caaggacete 1080 geegtettgg cetegaggga ggggetagae etegtgeeeg gggaegaeee catgeteete 1140 gectacetee tggaecette gaacaceace eeegaggggg tggegeggeg etaegggggg 1200 gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc 1260 cttaagcgcc tcgaggggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1320 ctctcccggg tcctggccca tatggaggcc accggggtac ggcgggacgt ggcctacctt 1380 caggecettt eeetggaget tgeggaggag ateegeegee tegaggagga ggtetteege 1440 ttggcgggcc accccttcaa cctcaactcc cgggaccagc tggaaagggt gctctttgac 1500 gagettagge ttecegeett ggggaagaeg caaaagaeag geaagegete caceagegee 1560 geggtgctgg aggccctacg ggaggcccac cccatcgtgg agaagatcct ccagcaccgg 1620 gageteacca ageteaagaa cacetaegtg gaceceetee caageetegt ecaceegagg 1680 acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc 1740 tecgacecca acetgeagaa cateceegte egeaceceet tgggeeagag gateegeegg 1800 gccttcatcg ccgaggaggg gtggctattg gtggccctgg actatagcca gatagagctc 1860 agggtgetgg eccacetete eggegaegag aacetgatee gggtetteea ggaggggegg 1920 gacatccaca cggagaccgc cagctggatg ttcggcgtcc cccgggaggc cgtggacccc 1980 ctgatgcgcc gggcggccaa gaccatcaac ttcggggtcc tctacggcat gtcggcccac 2040 egectetece aggagetage catecettae gaggaggeee aggeetteat tgagegetae 2100 tttcagagct tccccaaggt gcgggcctgg attgagaaga ccctggagga gggcaggagg 2160 cgggggtacg tggagacct cttcggccgc cgccgctacg tgccagacct agaggccgg 2220 gtgaagagcg tgcgggagc ggccgagcgc atggccttca acatgcccgt ccagggcacc 2280 gccgccgacc tcatgaagct ggctatggtg aagctcttcc ccaggctgga ggaaatgggg 2340 gccaggatgc tccttcaggt ccacaacgag ctggtcctcg aggccccaaa agagagggcg 2400 gaggccgtgg cccggctggc caaggaggtc atggagggg tgtatcccct ggccgtgcc 2460 ctggaggtgg aggtgggat agggaggac tggctctccg ccaaggagca ccaccaccac 2520 caccac

<210> 78

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

78 <400> atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 60 ggccaccacc tggcctaccg caccttette gccctgaagg gcctcaccac gagccggggc 120 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac 180 240 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 300 tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 360 420 geggaegaeg ttetegeeae eetggeeaag aaggeggaaa aggaggggta egaggtgege atcctcaccg ccgaccgcga cctctaccaa ctcgtctccg accgcgtcgc cgtcctccac 480 540 ecegagggee aceteateae eeeggagtgg etttgggaga agtaeggeet eaggeeggag 600 cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 720 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg gaagacetca ggeteteett ggagetetee egggtgegea eegaceteee eetggaggtg 780 gacctegece aggggeggga gecegacegg gaggggetta gggcetteet ggagaggetg 840 gagtteggea geeteeteea egagttegge eteetggagg eeeeegeeee eetggaggag 900 960 gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc

			.			1000
atgtgggcgg	agcttaaagc	cctggccgcc	tgcaggggcg	geegegteea	ccgggceecc	1020
gagccttata	aagccctcag	ggacctgaag	gaggcgcggg	ggcttctcgc	caaagacctg	1080
agcgttctgg	ccctgaggga	aggccttggc	ctcccgcccg	gcgacgaccc	catgeteete	1140
gcctacctcc	tggacccttc	gaacaccacc	cccgaggggg	tggcccggcg	ctacggcggg	1200
gagtggacgg	aggaggcggg	ggagcgggcc	gccctttccg	agaggctctt	cgccaacctg	1260
tgggggaggc	ttgaggggga	ggagaggctc	ctttggcttt	accgggaggt	ggagaggccc	1320
ctttccgctg	tcctggccca	tatggaggcc	acgggggtgc	gcctggacgt	ggcctatctc	1380
agggccttgt	ccctggaggt	ggccgaggag	atcgcccgcc	tcgaggccga	ggtcttccgc	1440
ctggccggcc	accccttcaa	cctcaactcc	cgggaccagc	tggaaagggt	cctctttgac	1500
gagctagggc	ttcccgccat	cggcaagacg	gagaagaccg	gcaagcgctc	caccagcgcc	1560
gccgtcctgg	aggccctccg	cgaggcccac	cccatcgtgg	agaagatcct	gcagtaccgg	1620
gagctcacca	agctgaagag	cacctacatt	gaccccttgc	cggacctcat	ccaccccagg	1680
acgggccgcc	tccacacccg	cttcaaccag	acggccacgg	ccacgggcag	gctaagtagc	1740
tccgatccca	acctccagaa	catccccgtc	cgcaccccgc	ttgggcagag	gatccgccgg	1800
gccttcgtgg	ccgaggcggg	ttgggcgttg	gtggccctgg	actatagcca	gatagagctc	1860
cgcgtcctcg	cccacctctc	cggggacgaa	aacctgatca	gggtcttcca	ggagggaag	1920
gacatccaca	cccagaccgc	aagctggatg	ttcggcgtcc	ccccggaggc	cgtggacccc	1980
ctgatgcgcc	gggcggccaa	gacggtgaac	ttcggcgtcc	tctacggcat	gtccgcccat	2040
aggctctccc	aggagcttgc	catcccctac	gaggaggcgg	tggcctttat	agagcgctac	2100
ttccaaagct	tccccaaggt	gcgggcctgg	atagaaaaga	ccctggagga	ggggaggaag	2160
cggggctacg	tggaaaccct	cttcggaaga	aggcgctacg	tgcccgacct	caacgcccgg	2220
gtgaagagcg	tcagggaggc	cgcggagcgc	atggccttca	acatgcccgt	ccagggcacc	2280
gccgccgacc	tcatgaagct	cgccatggtg	aagctcttcc	cccgcctccg	ggagatgggg	2340
gcccgcatgc	tcctccaggt	ccacaacgag	ctcctcctgg	aggcccccca	agcgcgggcc	2400
gaggaggtgg	cggctttggc	caaggaggcc	atggagaagg	cctatcccct	cgccgtgccc	2460
ctggaggtgg	aggtggggat	gggggaggac	tggctttccg	ccaagggtca	ccaccaccac	2520
caccac						2526

<210> 79

<211> 2499

<212> DNA

<213> Artificial Sequence

<223> Synthetic

<400> 60 atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 180 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 480 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 540 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge eaaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 900 agcctcctcc acgagttcgg ccttctggaa agccccaagg ccctggagga ggccccctgg ccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 1020 gatettetgg ceetggeege egecagggge ggeegegtge acegggeage agacecettg 1080 geggggetaa aggaeeteaa ggaggteegg ggeeteeteg eeaaggaeet egeegtettg 1140 gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1200 ctggaccett cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1260 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc 1320 ctcgagggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1380 gtcctggccc atatggaggc caccggggta cggcgggacg tggcctacct tcaggccctt 1440 tccctggagc ttgcggagga gatccgccgc ctcgaggagg aggtcttccg cttggcgggc caccccttca acctcaactc ccgggaccag ctggaaaggg tgctctttga cgagcttagg 1500 cttcccgcct tggggaagac gcaaaagaca ggcaagcgct ccaccagcgc cgcggtgctg 1560 gaggecetae gggaggecea ecceategtg gagaagatee tecageaceg ggageteace 1620 aageteaaga acacetaegt ggaceceete eeaageeteg teeaceegag gaegggeege 1680 ctccacaccc gcttcaacca gacggccacg gccacgggga ggcttagtag ctccgacccc 1740 1800 aacctgcaga acatccccgt ccgcaccccc ttgggccaga ggatccgccg ggccttcgtg 1860 gccgaggcgg gttgggcgtt ggtggccctg gactatagcc agatagagct ccgcgtcctc 1920 gcccacctct ccggggacga aaacctgatc agggtcttcc aggaggggaa ggacatccac 1980 acceagaceg caagetggat gtteggegte eeeeeggagg eegtggacee eetgatgege egggeggeea agaeggtgaa etteggegte etetaeggea tgteegeeca taggetetee 2040 2100 caggagettg ccatececta egaggaggeg gtggeettta tagagegeta ettecaaage 2160 ttccccaagg tgcgggcctg gatagaaaag accctggagg aggggaggaa gcggggctac gtggaaaccc tcttcggaag aaggcgctac gtgcccgacc tcaacgcccg ggtgaagagc 2220 2280 gtcagggagg ccgcggagcg catggccttc aacatgcccg tccagggcac cgccgccgac ctcatgaagc tcgccatggt gaagctcttc ccccgcctcc gggagatggg ggcccgcatg 2340 2400 ctectecagg tecaegaega getecteetg gaggeeeeee aagegeggge egaggaggtg 2460 geggetttgg ccaaggagge catggagaag geetateeee tegeegtgee cetggaggtg 2499 gaggtgggga tggggggggg ctggctttcc gccaagggt

<210> 80

<211> 2499

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 80 atgaattegg ggatgetgee cetetttgag eccaagggee gggteeteet ggtggaegge 60 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 240 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 360 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 480 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag gggtacctca tcacccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540

600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 780 aageteteet gggaeetgge caaggtgege acegaeetge ceetggaggt ggaettegee aaaaggeggg ageeegaeeg ggagaggett agggeettte tggagagget tgagtttgge 840 900 agectectee aegagttegg cettetggaa ageceeaagg ceetggagga ggeeeeetgg cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 1020 gatettetgg ceetggeege egecagggge ggeegegtge acegggeage agacecettg 1080 geggggetaa aggaceteaa ggaggteegg ggeeteeteg eeaaggacet egeegtettg geetegaggg aggggetaga cetegtgeee ggggaegaee ceatgeteet egeetacete 1140 ctggaccett cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1200 1260 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc 1320 ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1380 gtcctggccc atatggaggc caccggggta cggcgggacg tggcctacct tcaggccctt tccctggagc ttgcggagga gatccgccgc ctcgaggagg aggtcttccg cttggcgggc 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tgctctttga cgagcttagg 1500 cttcccgcct tggggaagac gcaaaagaca ggcaagcgct ccaccagcgc cgcggtgctg 1560 gaggecetae gggaggecea ecceategtg gagaagatee tecageaceg ggageteace 1620 1680 aagctcaaga acacctacgt ggaccccctc ccaagcctcg tccacccgag gacgggccgc 1740 ctccacaccc gcttcaacca gacggccacg gccacgggga ggcttagtag ctccgacccc 1800 aacctgcaga acatccccgt ccgcaccccc ttgggccaga ggatccgccg ggccttcatc 1860 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1920 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 2040 egggeggeea agaccateaa etteggggte etetaeggea tgteggeeea eegeetetee caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 2160 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2220 gtggagaccc tetteggeeg cegeegetae gtgeeagace tagaggeeeg ggtgaagage 2280 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2340 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2400 ctccttcagg tccacgacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg

gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccqtqcc cctggaggtg 2460 2499 gaggtgggga taggggagga ctggctctcc gccaaggag <210> 81 <211> 2499 <212> DNA <213> Artificial Sequence <220> <223> Synthetic <400> 60 atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge caccacctgg cetaccgcac ettccacgcc etgaagggcc tcaccaccag eeggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 540 gggtacetea teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge eaaggtgege aeegaeetge eeetggaggt ggaettegee 780 840 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 900 agcetectee aegagttegg cettetggaa ageeecaagg ceetggagga ggeeecetgg cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 1020 gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1080 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 1200 ctggaccctt cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg

1260

gaggaggcgg gggagcgggc cgccctttcc gagaggctct tcgccaacct gtgggggagg

1320 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1380 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1440 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1500 cttcccgcca tcggcaagac ggagaagacc ggcaagcgct ccaccagcgc cgccgtcctg 1560 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagctgaaga gcacctacat tgaccccttg ceggacctca tecaccccag gaegggeege 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 1800 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcgtg 1860 gccgaggcgg gttgggcgtt ggtggccctg gactatagcc agatagagct ccgcgtcctc 1920 gcccacctct ccggggacga aaacctgatc agggtcttcc aggaggggaa ggacatccac acccagaccg caagetggat gttcggcgtc cccccggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agacggtgaa cttcggcgtc ctctacggca tgtccgccca taggctctcc 2040 2100 caggagettg ccatececta egaggaggeg gtggeettta tagagegeta ettecaaage ttccccaagg tgcgggcctg gatagaaaag accctggagg aggggaggaa gcggggctac 2160 2220 gtggaaaccc tcttcggaag aaggcgctac gtgcccgacc tcaacgcccg ggtgaagagc gtcagggagg ccgcggagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tegecatggt gaagetette eecegeetee gggagatggg ggeeegeatg 2340 2400 ctcctccagg tccacgacga gctcctcctg gaggcccccc aagcgcgggc cgaggaggtg 2460 geggetttgg ccaaggagge catggagaag geetateece tegeegtgee cetggaggtg 2499 gaggtgggga tggggggggagga ctggctttcc gccaagggt

<210> 82

<211> 2499

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 82

atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 60 caccacetgg cetacegeae ettecaegee etgaagggee teaccaeeag eeggggggag 120

ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 240 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 480 accgccgaca aagaccttta ccagctcctt tecgaccgca tecacgteet ecaccecgag gggtacetea teacecegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 780 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 900 agectectee aegagttegg cettetggaa ageceeaagg ceetggagga ggeeeeetgg 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc gatettetgg ceetggeege egeeagggge ggeegegtee acegggeece egageettat 1020 1080 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 1200 ctggaccett cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1260 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 1440 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge cacccettca acetcaacte cegggaccag etggaaaggg teetetttga egagetaggg 1500 1560 cttcccgcca tcggcaagac gcaaaagacc ggcaagcgct ccaccagcgc cgccgtcctg 1620 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc aagctgaaga gcacctacat tgaccccttg ceggacctca tecaccccag gacgggeege 1680 1740 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1800 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1860 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1920 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc

egggeggeca agaccateaa etteggggte etetaeggea tgteggeeca eegeetetee 2040 caggagetag ccatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 2220 gtggagaccc tetteggeeg eegeegetae gtgeeagace tagaggeeeg ggtgaagage gtgegggagg eggeegageg catggeette aacatgeeeg teeagggeae egeegeegae 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacgacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggag 2499

<210> 83

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 83

atgaattegg ggatgetgee eetetttgag cecaagggee gggteeteet ggtggaegge 60 caccacctgg cetaccgcac ettecacgcc etgaagggcc teaccaccag eeggggggag 120 ceggtgcagg eggtctaegg ettegccaag agectectca aggecetcaa ggaggaeggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc aaggagetgg tggaeeteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacetea teacecegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 geogactace gggeeetgae eggggaegag teegacaace tteeeggggt caagggeate 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 780 aageteteet gggaeetgge caaggtgege aeegaeetge eeetggaggt ggaettegee aaaaggeggg ageeegaeeg ggagaggett agggeettte tggagagget tgagtttgge 840

agcctcctcc	acgagttcgg	ccttctggaa	agccccaagg	ccctggagga	ggccccctgg	900
ccccgccgg	aaggggcctt	cgtgggcttt	gtgctttccc	gcaaggagcc	catgtgggcc	960
gatcttctgg	ccctggccgc	cgccaggggc	ggccgcgtcc	accgggcccc	cgagccttat	1020
aaagccctca	gggacctgaa	ggaggcgcgg	gggcttctcg	ccaaagacct	gagcgttctg	1080
gccctgaggg	aaggccttgg	cctcccgccc	ggcgacgacc	ccatgctcct	cgcctacctc	1140
ctggaccctt	cgaacaccac	ccccgagggg	gtggcccggc	gctacggcgg	ggagtggacg	1200
gaggaggcgg	ggcaccgggc	cgccctttcc	gagaggctct	tcgccaacct	gtgggggagg	1260
cttgaggggg	aggagaggct	cctttggctt	taccgggagg	tggagaggcc	cctttccgct	1320
gtcctggccc	atatggaggc	caccggggta	cggcgggacg	tggcctacct	tcaggccctt	1380
tccctggagc	ttgcggagga	gatccgccgc	ctcgaggagg	aggtcttccg	cttggcgggc.	1440
caccccttca	acctcaactc	ccgggaccag	ctggaaaggg	tgctctttga	cgagcttagg	1500
cttcccgcct	tggggaagac	gcaaaagaca	ggcaagcgct	ccaccagcgc	cgcggtgctg	1560
gaggccctac	gggaggccca	ccccatcgtg	gagaagatcc	tccagcaccg	ggagctcacc	1620
aagctcaaga	acacctacgt	ggaccccctc	ccaagcctcg	tccacccgag	gacgggccgc	1680
ctccacaccc	gcttcaacca	gacggccacg	gccacgggga	ggcttagtag	ctccgacccc	1740
aacctgcaga	acatccccgt	ccgcaccccc	ttgggccaga	ggatccgccg	ggccttcatc	1800
gccgaggagg	ggtggctatt	ggtggccctg	gactatagcc	agatagagct	cagggtgctg	1860
gcccacctct	ccggcgacga	gaacctgatc	cgggtcttcc	aggaggggcg	ggacatccac	1920
acggagaccg	ccagctggat	gttcggcgtc	ccccgggagg	ccgtggaccc	cctgatgcgc	1980
cgggcggcca	agaccatcaa	cttcggggtc	ctctacggca	tgtcggccca	ccgcctctcc	2040
caggagctag	ccatccctta	cgaggaggcc	caggccttca	ttgagcgcta	ctttcagagc	2100
ttccccaagg	tgcgggcctg	gattgagaag	accctggagg	agggcaggag	gcgggggtac	2160
gtggagaccc	tcttcggccg	ccgccgctac	gtgccagacc	tagaggcccg	ggtgaagagc	2220
gtgcgggagg	cggccgagcg	catggccttc	aacatgcccg	tccagggcac	cgccgccgac	2280
ctcatgaagc	tggctatggt	gaagctcttc	cccaggctgg	aggaaatggg	ggccaggatg	2340
ctccttcagg	tccacaacga	gctggtcctc	gaggccccaa	aagagagggc	ggaggccgtg	2400
gcccggctgg	ccaaggaggt	catggagggg	gtgtatcccc	tggccgtgcc	cctggaggtg	2460
gaggtgggga	taggggagga	ctggctctcc	gccaaggagc	accaccacca	ccaccac	2517

<210> 84

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 84 60 atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggag ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 240 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 360 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 480 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 540 gggtacetea teaceeegge etggetttgg gaaaagtacg geetgaggee egaceagtgg 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 780 aageteteet gggaeetgge eaaggtgege acegaeetge eeetggaggt ggaettegee 840 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc agceteetee aegagttegg cettetggaa ageeceaagg ceetggagga ggeeceetgg 900 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 1020 gatettetgg ceetggeege egeeagggge ggeegegtee acegggeece egageettat 1080 aaageeetea gggaeetgaa ggaggegegg gggetteteg eeaaagaeet gagegttetg 1140 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1200 ctggaccett cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg gaggaggegg gggageggge egecetttee gagaggetee ateggaacet gtgggggagg 1260 1320 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct gtcctggccc atatggaggc caccggggta cggcgggacg tggcctacct tcaggccctt 1380 tecetggage ttgeggagga gateegeege etegaggagg aggtetteeg ettggeggge 1440 1500 caccccttca acctcaactc ccgggaccag ctggaaaggg tgctctttga cgagcttagg cttcccgcct tggggaagac gcaaaagaca ggcaagcgct ccaccagcgc cgcggtgctg 1560 gaggecetae gggaggeeca ecceategtg gagaagatee tecageaceg ggageteace 1620

aageteaaga acacetaegt ggaceceete ecaageeteg tecaceegag gaegggeege 1680 1740 etccacacce gettcaacca gaeggecaeg gecaegggga ggettagtag etcegaeece aacctgcaga acatccccgt ccgcaccccc ttgggccaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 geceacetet ceggegaega gaacetgate egggtettee aggaggggeg ggaeateeae 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 egggeggeca agaccateaa etteggggte etetaeggea tgteggeeca eegeetetee 2040 caggagetag ccatceetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg eegeegetae gtgeeagace tagaggeeeg ggtgaagage 2220 2280 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagaggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 85

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 85 atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480

540 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 780 aageteteet gggacetgge caaggtgege acegacetge ceetggaggt ggacttegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 900 agceteetee aegagttegg cettetggaa ageeceaagg ceetggagga ggeeceetgg 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc gatettetgg ceetggeege egeeagggge ggeegegtee acegggeece egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 1200 ctggaccctt cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1260 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1320 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1380 gtcctggccc atatggaggc caccggggta cggcgggacg tggcctacct tcaggccctt tecetggage ttgeggagga gateegeege etegaggagg aggtetteeg ettggeggge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tgctctttga cgagcttagg 1500 1560 cttcccgcct tggggaagac gcaaaagaca ggcaagcgct ccaccagcgc cgcggtgctg 1620 gaggccctac gggaggccca ccccatcgtg gagaagatcc tccagcaccg ggagctcacc aageteaaga acacetaegt ggaceceete ecaageeteg tecaceegag gaegggeege 1680 1740 ctccacaccc gcttcaacca gacggccacg gccacgggga ggcttagtag ctccgacccc aacctgcaga acatccccgt ccgcaccccc ttgggccaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 1920 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 2040 egggeggeca agaccateaa etteggggte etetaeggea tgteggeeca eegeetetee 2100 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc 2160 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac gtggagaccc tetteggeeg eegeegetac gtgeeagacc tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340

ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagaggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 86

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 60 atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 180 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgteetgg ccageetgge caagaaggeg gaaaaggagg getaegaggt ccgcateete 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 540 gggtacetea teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 600 geogactace gggceetgae eggggaegag teegacaace tteeeggggt caagggcate 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege aeegaeetge eeetggaggt ggaettegee 780 840 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 900 agceteetee aegagttegg cettetggaa ageeecaagg ceetggagga ggeeecetgg 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 1020 gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1080 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1140 geoctgaggg aaggeettgg cetecegece ggegaegaee ceatgeteet egeetaeete

ctggaccett cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg

1200

1260 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gtgggggagg 1320 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttcccgg gtcctggccc atatggaggc caccggggta cggcgggacg tggcctacct tcaggccctt 1380 tecetggage ttgeggagga gateegeege etegaggagg aggtetteeg ettggeggge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tgctctttga cgagcttagg 1500 1560 ettecegeet tggggaagae geaaaagaea ggeaageget eeaceagege egeggtgetg gaggccctac gggaggccca ccccatcgtg gagaagatcc tccagcaccg ggagctcacc 1620 aageteaaga acacetaegt ggaceeete ecaageeteg tecaceegag gaegggeege 1680 ctccacaccc gcttcaacca gacggccacg gccacgggga ggcttagtag ctccgacccc 1740 aacctgcaga acatccccgt ccgcaccccc ttgggccaga ggatccgccg ggccttcatc 1800 1860 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagctag ccatccetta cgaggaggcc caggcettca ttgagcgcta ctttcagagc 2100 2160 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2220 gtggagaccc tetteggeeg eegeegetae gtgeeagace tagaggeeeg ggtgaagage gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 geceggetgg ceaaggaggt catggagggg gtgtateece tggeegtgee cetggaggtg 2460 2517 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac

<210> 87

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 87

atgaattcgg ggatgctgcc cctctttgag cccaagggcc gggtcctcct ggtggacggc

60

caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 180 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 240 gacgeggtga tegtggtett tgacgecaag geceeteet teegecaega ggeetaeggg gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacetea teacecegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege aeegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 900 agectectee aegagttegg cettetggaa agececaagg ceetggagga ggeeceetgg cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 1020 gatettetgg ceetggeege egecagggge ggeegegtge acegggeage agacecettg geggggetaa aggaceteaa ggaggteegg ggeeteeteg ceaaggacet egeegtettg 1080 gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1140 1200 ctggaccett cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1260 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1320 1380 gtcctggccc atatggaggc cacgggggtg cgccgggacg tggcctatct cagggccttg tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 1500 cacccettca acctcaacte cegggaccag etggaaaggg teetetttga egagetaggg 1560 ettecegeea teggeaagae ggagaagaee ggeaageget eeaceagege egeegteetg gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 1680 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1740 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1800 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 1920 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac

acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 2040 egggeggeca agaccateaa etteggggte etetaeggea tgteggeeca eegeetetee 2100 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 2280 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 2517 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac

<210> 88

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 88 60 atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 180 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 240 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaeeteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagacettta ccageteett teegacegea teeaegteet ecaeecegag 480 540 gggtacetea teaceegge etggetttgg gaaaagtacg geetgaggee egaceagtgg 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 780 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee

aaaaggcggg	agcccgaccg	ggagaggctt	agggcctttc	tggagaggct	tgagtttggc	840
agcctcctcc	acgagttcgg	ccttctggaa	agccccaagg	ccctggagga	ggccccctgg	900
cccccgccgg	aaggggcctt	cgtgggcttt	gtgctttccc	gcaaggagcc	catgtgggcc	960
gatcttctgg	ccctggccgc	cgccaggggc	ggccgcgtgc	accgggcagc	agaccccttg	1020
gcggggctaa	aggacctcaa	ggaggtccgg	ggcctcctcg	ccaaggacct	cgccgtcttg	1080
gcctcgaggg	aggggctaga	cctcgtgccc	ggggacgacc	ccatgctcct	cgcctacctc	1140
ctggaccctt	cgaacaccac	ccccgagggg	gtggcgcggc	gctacggggg	ggagtggacg	1200
gaggacgccg	cccaccgggc	cctcctctcg	gagaggctcc	atcggaacct	ccttaagcgc	1260
ctcgaggggg	aggagaagct	cctttggctc	taccacgagg	tggaaaagcc	cctctcccgg	1320
gtcctggccc	atatggaggc	cacgggggtg	cgcctggacg	tggcctatct	ccaggccttg	1380
tccctggagg	tggccgagga	gatcgcccgc	ctcgaggccg	aggtcttccg	cctggccggc	1440
caccccttca	acctcaactc	ccgggaccag	ctggaaaggg	tcctctttga	cgagctaggg	1500
cttcccgcca	tcggcaagac	ggagaagacc	ggcaagcgct	ccaccagcgc	cgccgtcctg	1560
gaggccctcc	gcgaggccca	ccccatcgtg	gagaagatcc	tgcagtaccg	ggagctcacc	1620
aagctgaaga	gcacctacat	tgaccccttg	ccggacctca	tccaccccag	gacgggccgc	1680
ctccacaccc	gcttcaacca	gacggccacg	gccacgggca	ggctaagtag	ctccgatccc	1740
aacctccaga	acatccccgt	ccgcaccccg	cttgggcaga	ggatccgccg	ggccttcatc	1800
gccgaggagg	ggtggctatt	ggtggccctg	gactatagcc	agatagagct	cagggtgctg	1860
gcccacctct	ccggcgacga	gaacctgatc	cgggtcttcc	aggaggggg	ggacatccac	1920
acggagaccg	ccagctggat	gttcggcgtc	ccccgggagg	ccgtggaccc	cctgatgcgc	1980
cgggcggcca	agaccatcaa	cttcggggtc	ctctacggca	tgtcggccca	ccgcctctcc	2040
caggagctag	ccatccctta	cgaggaggcc	caggccttca	ttgagcgcta	ctttcagagc	2100
ttccccaagg	tgcgggcctg	gattgagaag	accctggagg	agggcaggag	gcgggggtac	2160
gtggagaccc	tcttcggccg	ccgccgctac	gtgccagacc	tagaggcccg	ggtgaagagc	2220
gtgcgggagg	cggccgagcg	catggccttc	aacatgcccg	tccagggcac	cgccgccgac	2280
ctcatgaagc	tggctatggt	gaagctcttc	cccaggctgg	aggaaatggg	ggccaggatg	2340
ctccttcagg	tccacaacga	gctggtcctc	gaggccccaa	aagagaggc	ggaggccgtg	2400
gcccggctgg	ccaaggaggt	catggagggg	gtgtatcccc	tggccgtgcc	cctggaggtg	2460
gaggtgggga	taggggagga	ctggctctcc	gccaaggagc	accaccacca	ccaccac	2517

<210> 89

<211> 2517

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 89 60 atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 240 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 360 aaggagetgg tggaeeteet ggggetggeg egeetegagg teeegggeta egaggeggae gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 780 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 900 agcetectee aegagttegg cettetggaa ageeceaagg ceetggagga ggeeceetgg 960 cccccgccgg aaggggcett cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 1020 gatettetgg ccetggcege egecagggge ggeegegtge acegggeage agacecettg 1080 geggggetaa aggaeeteaa ggaggteegg ggeeteeteg eeaaggaeet egeegtettg gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1140 ctggaccctt cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1200 1260 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 1440 tecetggage ttgeegagga gategeege etegaggeeg aggtetteeg eetggeegge 1500 caccccttca acctcaactc cogggaccag ctggaaaggg tcctctttga cgagctaggg cttcccgcca tcggcaagac ggagaagacc ggcaagcgct ccaccagcgc cgccgtcctg 1560

gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagetgaaga geacetacat tgacecettg eeggacetea teeaceeeag gaegggeege 1680 1740 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 geceaectet eeggegaega gaacetgate egggtettee aggaggggeg ggacateeae 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 2220 gtggagaccc tetteggeeg eegeegetae gtgeeagace tagaggeeeg ggtgaagage gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 2517 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac

<210> 90

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 90

atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 60 caccacetgg cetacegeae ettecaegee etgaagggee teaceaeag eegggggag 120 ceggtgeagg eggtetaegg ettegeeaag ageeteetea aggeeeteaa ggaggaeggg 180 gaegeeggta tegtggtett tgaegeeaag geeeeeteet teegeeaega ggeetaeggg 240 gggtaeaagg egggeeggge eeeeaegge gaggaettte eeeggeaaet egeeeteate 300 aaggagetgg tggaeeteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gaegteetgg eeageetgge eaagaaggeg gaaaaggagg getaegaggt eegeateete 420

accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 780 aageteteet gggacetgge caaggtgege acegacetge ceetggaggt ggacttegee 840 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 900 agectectee aegagttegg cettetggaa ageceeaagg ceetggagga ggeeecetgg cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 1020 gatettetgg ceetggeege egecagggge ggeegegtge acegggeage agacecettg 1080 geggggetaa aggaeeteaa ggaggteegg ggeeteeteg eeaaggaeet egeegtettg 1140 gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1200 ctggaccctt cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1260 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc 1320 ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 teeetggagg tggeegagga gateegeege etegaggeeg aggtetteeg eetggeegge 1440 1500 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1560 ettecegeca teggeaagae ggagaagaee ggeaageget ceaceagege egeegteetg gaggecetee gegaggeeea ecceategtg gagaagatee tgeagtaceg ggageteace 1620 1680 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1740 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1800 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1860 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1920 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagetag ccatceetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagaggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 91

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 91

60 atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 360 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 780 aageteteet gggacetgge caaggtgege acegacetge eeetggaggt ggacttegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 900 agcetectee aegagttegg cettetggaa agceecaagg ceetggagga ggeeceetgg cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecagggge ggeegegtge acegggeage agacecettg 1020 geggggetaa aggaceteaa ggaggteegg ggeeteeteg eeaaggacet egeegtettg 1080 gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1140

ctggaccctt cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1200 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc 1260 1320 ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 1440 tecetggagg tggcegagga gategeeege etegaggagg aggtetteeg eetggeegge caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1500 cttcccgcca tcggcaagac ggagaagacc ggcaagcgct ccaccagcgc cgccgtcctg 1560 gaggecetee gegaggeeea ecceategtg gagaagatee tgeagtaceg ggageteace 1620 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1680 1740 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1800 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 2100 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2160 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 2280 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 2460 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 92

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 92

60 atgaattegg ggatgetgee cetetttgag eecaagggee gggteeteet ggtggaegge 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 180 ceggtgcagg eggtetaegg ettegecaag ageeteetea aggeeeteaa ggaggaeggg gacgeggtga tegtggtett tgacgecaag geceeteet teegecacga ggeetaeggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 360 aaggagetgg tggaeeteet ggggetggeg egeetegagg teeegggeta egaggeggae 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 780 aageteteet gggaeetgge eaaggtgege aeegaeetge eeetggaggt ggaettegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agcctcctcc acgagttcgg ccttctggaa agccccaagg ccctggagga ggccccctgg 900 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 1020 gatettetgg ceetggeege egecagggge ggeegegtge acegggeage agacecettg 1080 geggggetaa aggaceteaa ggaggteegg ggeeteeteg eeaaggacet egeegtettg 1140 gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc ctggaccett cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1200 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc 1260 1320 ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tccctggagg tggccgagga gatcgcccgc ctcgaggccg aggtcttccg cctggccggc 1440 1500 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaagg 1560 ettecegeca teggeaagae ggagaagaee ggeaageget eeaceagege egeegteetg gaggeeetee gegaggeeea ceeeategtg gagaagatee tgeagtaeeg ggageteace 1620 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1680 1740 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1800 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860

gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc egggeggeea agaccateaa etteggggte etetaeggea tgteggeeca eegeetetee 2040 2100 caggagetag ccatecetta egaggaggee caggeettea ttgagegeta ettteagage ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 93

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 93 atgaattegg ggatgetgee cetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 360 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 540 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720

aagctctcct	gggacctggc	caaggtgcgc	accgacctgc	ccctggaggt	ggacttcgcc	780
aaaaggcggg	agcccgaccg	ggagaggctt	agggcctttc	tggagaggct	tgagtttggc	840
agcctcctcc	acgagttcgg	ccttctggaa	agccccaagg	ccctggagga	ggccccctgg	900
ccccgccgg	aaggggcctt	cgtgggcttt	gtgctttccc	gcaaggagcc	catgtgggcc	960
gatcttctgg	ccctggccgc	cgccaggggc	ggccgcgtgc	accgggcagc	agaccccttg	1020
gcggggctaa	aggacctcaa	ggaggtccgg	ggcctcctcg	ccaaggacct	cgccgtcttg	1080
gcctcgaggg	aggggctaga	cctcgtgccc	ggggacgacc	ccatgctcct	cgcctacctc	1140
ctggaccctt	cgaacaccac	ccccgagggg	gtggcgcggc	gctacggggg	ggagtggacg	1200
gaggacgccg	cccaccgggc	cctcctctcg	gagaggctcc	atcggaacct	ccttaagcgc	1260
ctcgaggggg	aggagaagct	cctttggctc	taccacgagg	tggaaaagcc	cctctcccgg	1320
gtcctggccc	atatggaggc	cacgggggtg	cgcctggacg	tggcctatct	cagggccttg	1380
tccctggagg	tggccgagga	gatcgcccgc	ctcgaggccg	aggtcttccg	cctggccggc	1440
caccccttca	acctcaactc	ccgggaccag	ctggaaaggg	tcctctttga	cgagctaggg	1500
cttcccgcca	tcggcaagac	gcaaaagacc	ggcaagcgct	ccaccagcgc	cgccgtcctg	1560
gaggccctcc	gcgaggccca	ccccatcgtg	gagaagatcc	tgcagtaccg	ggagctcacc	1620
aagctgaaga	gcacctacat	tgaccccttg	ccggacctca	tccaccccag	gacgggccgc	1680
ctccacaccc	gcttcaacca	gacggccacg	gccacgggca	ggctaagtag	ctccgatccc	1740
aacctccaga	acatccccgt	ccgcaccccg	cttgggcaga	ggatccgccg	ggccttcatc	1800
gccgaggagg	ggtggctatt	ggtggccctg	gactatagcc	agatagagct	cagggtgctg	1860
gcccacctct	ccggcgacga	gaacctgatc	cgggtcttcc	aggaggggg	ggacatccac	1920
acggagaccg	ccagctggat	gttcggcgtc	ccccgggagg	ccgtggaccc	cctgatgcgc	1980
cgggcggcca	agaccatcaa	cttcggggtc	ctctacggca	tgtcggccca	ccgcctctcc	2040
caggagctag	ccatccctta	cgaggaggcc	caggccttca	ttgagcgcta	ctttcagagc	2100
ttccccaagg	tgcgggcctg	gattgagaag	accctggagg	agggcaggag	gcgggggtac	2160
gtggagaccc	tcttcggccg	ccgccgctac	gtgccagacc	tagaggcccg	ggtgaagagc	2220
gtgcgggagg	cggccgagcg	catggccttc	aacatgcccg	tccagggcac	cgccgccgac	2280
ctcatgaagc	tggctatggt	gaagctcttc	cccaggctgg	aggaaatggg	ggccaggatg	2340
ctccttcagg	tccacaacga	gctggtcctc	gaggccccaa	aagagaggc	ggaggccgtg	2400
gcccggctgg	ccaaggaggt	catggagggg	gtgtatcccc	tggccgtgcc	cctggaggtg	2460
gaggtgggga	taggggagga	ctggctctcc	gccaaggagc	accaccacca	ccaccac	2517

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 94 atgaattegg ggatgetgee cetetttgag eccaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggag 120 ceggtgeagg eggtetaegg ettegeeaag ageeteetea aggeeeteaa ggaggaeggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagacettta ccageteett teegacegea teeaegteet ecaeeeegag 480 gggtacctca tcacccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 780 aagctctcct gggacctggc caaggtgcgc accgacctgc ccctggaggt ggacttcgcc 840 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc agceteetee aegagttegg cettetggaa ageeecaagg ceetggagga ggeeecetgg 900 ccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatcttetgg ccctggccgc cgccaggggc ggccgcgtgc accgggcagc agaccccttg 1020 geggggetaa aggaceteaa ggaggteegg ggeeteeteg eeaaggacet egeegtettg 1080 gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1140 etggaccett egaacaccae eecegagggg gtggegegge getaeggggg ggagtggaeg 1200 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc 1260 ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tccctggagg tggccgagga gatcgcccgc ctcgaggccg aggtcttccg cctggccggc 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1500

1560 ettecegeca teggeaagae ggagaagaee ggeaageget ceaceagege egeegteetg 1620 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagcaccg ggagctcacc 1680 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1740 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1800 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 1920 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 2280 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2340 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2400 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 95

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 95

atgaattcgg ggatgctgcc cctctttgag cccaagggcc gggtcctcct ggtggacggc 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgcctcatc 300 aaggagctgg tggacctcct ggggctggcg cgcctcgagg tcccgggcta cgaggcggac 360

420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacetea teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 600 geogaetace gggeeetgae eggggaegag teegaeaace tteeeggggt caagggeate 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 780 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agcetectee aegagttegg cettetggaa agceecaagg ceetggagga ggeeceetgg 900 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ccetggccgc cgccaggggc ggccgcgtgc accgggcagc agacccettg 1020 1080 geggggetaa aggaeeteaa ggaggteegg ggeeteeteg eeaaggaeet egeegtettg gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1140 1200 ctggaccctt cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1260 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 1500 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg ettecegeea teggeaagae ggagaagaee ggeaageget ceaceagege egeegteetg 1560 1620 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc aagctgaaga acacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 1860 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1920 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 egggeggeea agaccateaa etteggggte etetaeggea tgteggeeea eegeetetee 2040 caggagetag ccatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220

gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagaagaggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggaggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtggga taggggaga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 96

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 96

atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgcctcatc aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tecgacegca tecaegteet ecaeeeegag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege aeegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agceteetee aegagttegg cettetggaa ageeecaagg ceetggagga ggeeecetgg 900 ecccegcegg aaggggeett egtgggettt gtgettteee geaaggagee catgtgggee 960 gatettetgg ceetggeege egecagggge ggeegegtge acegggeage agaceettg 1020 gcggggctaa aggacctcaa ggaggtccgg ggcctcctcg ccaaggacct cgccgtcttg 1080 gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1140 1200 ctggaccett cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1260 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc ctcgagggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 1500 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg ettecegeea teggeaagae ggagaagaee ggeaageget ceaceagege egeegteetg 1560 gaggecetee gegaggeeca ecceategtg gagaagatee tgeagtaceg ggageteace 1620 1680 aagctgaaga gcacctacgt ggaccccttg coggacctca tocaccccag gacgggccgc 1740 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 1860 geogaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 2040 egggeggeea agaceateaa etteggggte etetaeggea tgteggeeea eegeetetee caggagetag ccatceetta egaggaggee caggeettea ttgagegeta ettteagage 2100 2160 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2220 gtggagaccc tetteggeeg cegeegetac gtgccagacc tagaggeeeg ggtgaagage gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 2340 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 97

<211> -2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 97 atgaattegg ggatgetgee cetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ceggtgcagg eggtetaegg ettegecaag ageeteetea aggeeeteaa ggaggaeggg 180 gacgeggtga tegtggtett tgacgecaag geceeteet teegecaega ggeetaeggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 acegeegaca aagacettta eeageteett teegacegea teeaegteet eeaceeegag 480 gggtacetca teacecegge etggetttgg gaaaagtacg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agcctcctcc acgagttcgg ccttctggaa agccccaagg ccctggagga ggccccctgg 900 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecagggge ggeegegtge acegggeage agacecettg 1020 geggggetaa aggaceteaa ggaggteegg ggeeteeteg eeaaggaeet egeegtettg 1080 geetegaggg aggggetaga cetegtgeee ggggaegaee ceatgeteet egeetaeete 1140 ctggaccctt cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1200 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc 1260 ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tccctggagg tggccgagga gatcgcccgc ctcgaggccg aggtcttccg cctggccggc 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1500 ettecegeca teggeaagae ggagaagaee ggeaageget ceaceagege egeegteetg 1560 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagetgaaga geacetacat tgacecettg cegageeteg tecaceceag gaegggeege 1680 etecacacce getteaacca gaeggeeacg geeacgggea ggetaagtag etecgatece 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860

gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc egggeggeea agaceateaa etteggggte etetaeggea tgteggeeea eegeetetee 2040 2100 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2160 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 2280 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 2460 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 98

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 98 60 atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 240 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc aaggagetgg tggaeeteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctectt tecgacegea tecaegteet ecaeeeegag 480 gggtacetca teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg

aageteteet gggacetgge caaggtgege acegacetge ceetggaggt ggaettegee 780 840 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 900 agceteetee aegagttegg cettetggaa agceecaagg ceetggagga ggeeceetgg cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatcttctgg ccctggccgc cgccaggggc ggccgcgtcc accgggcccc cgagccttat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 etggaccett cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeegg etegaggeeg aggtetteeg eetggeegge 1440 1500 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg ettecegeca teggeaagae geaaaagaee ggeaageget ceaecagege egeegteetg 1560 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagetgaaga geacetaeat tgacecettg eeggacetea tecaceceag gaegggeege 1680 etecacacee getteaacea gaeggeeacg gecaegggea ggetaagtag etecgateee 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 1860 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 etectteagg tecacaacga getggteete gaggeeccaa aagagaggge ggaggeegtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517 <211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 99 atgaattcgg ggatgctgcc cctctttgag cccaagggcc gggtcctcct ggtggacggc 60 caccacctgg cetaccgcac ettecacgcc etgaagggcc teaccaccag eegggggag 120 180 ceggtgcagg eggtetaegg ettegecaag ageeteetea aggeeeteaa ggaggaeggg gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 360 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 480 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtgggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 780 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agectectee aegagttegg cettetggaa ageceeaagg ceetggagga ggeceeetgg 900 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 1020 gatettetgg ceetggeege egecagggge ggeegegtee acegggeeee egageettat 1080 aaageeetea gggaeetgaa ggaggegegg gggetteteg ceaaagaeet gagegttetg 1140 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc ctggaccett cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggcgg gggagcgggc cgccctttcc gagaggctct tcgccaacct gcttgggagg 1260 cttgagggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege eteggaggeeg aggtetteeg eetggeegge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1500

1560 ettecegeca teggeaagae geaaaagaee ggeaageget eeaceagege egeegteetg gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagetgaaga geacetaeat tgaeeeettg eeggaeetea teeaeeeeag gaegggeege 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg eegeegetae gtgeeagace tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 100

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 100

420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 480 acegeegaca aagacettta eeageteett teegacegea teeaegteet eeaceeegag gggtacetca teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 780 aageteteet gggaeetgge caaggtgege aeegaeetge eeetggaggt ggaettegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 900 agcotoctoc acgagitegg cottotggaa agcoccaagg cootggagga ggccccotgg cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egeeaggge ggeegegtee acegggeece egageettat 1020 1080 aaageeetea gggaeetgaa ggaggegegg gggetteteg eeaaagaeet gagegttetg gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 ctggaccett cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gtggaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggccgagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1500 1560 ettecegeca teggeaagae geaaaagae ggeaageget ceaceagege egeegteetg gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1680 1740 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 geceacetet eeggegaega gaacetgate egggtettee aggaggggeg ggacateeae 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagetag ccatceetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagaggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggaggg gtgtatcccc tggccgtgc cctggaggtg 2460 gaggtggga taggggaga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 101

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 101

atgaatteeg aggegatget teegetettt gaacceaaag geegggteet eetggtggae 60 ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc 120 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac 180 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240 tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc 300 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 360 geggaegaeg ttetegeeae cetggeeaag aaggeggaaa aggaggggta egaggtgege 420 atecteaceg eegacegega cetetaceaa etegteteeg acegegtege egteeteeae 480 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag 540 cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag 600 ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg 720 gaagacctca ggctctcctt ggagctctcc cgggtgcgca ccgacctccc cctggaggtg 780 gacctegece aggggeggga geeegacegg gaggggetta gggeetteet ggagaggetg 840 gagtteggea geeteeteea egagttegge eteetggagg eeeeegeeee eetggaggag 900 gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc 960 atgtgggcgg agcttaaagc cctggccgcc tgcagggacg gccgggtgca ccgggcagca 1020 gacccettgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc 1080

accatcttaa	cctcgaggga	ggggctagac	ctcataccca	gggacgaccc	catgctcctc	1140
						1200
	tggacccttc					
gagtggacgg	aggacgccgc	ccaccgggcc	ctcctctcgg	agaggctcca	tcggaacctc	1260
cttaagcgcc	tcgaggggga	ggagaagctc	ctttggctct	accacgaggt	ggaaaagccc	1320
ctctcccggg	tcctggccca	tatggaggcc	accggggtac	ggcgggacgt	ggcctacctt	1380
caggcccttt	ccctggagct	tgcggaggag	atccgccgcc	tcgaggagga	ggtcttccgc	1440
ttggcgggcc	accccttcaa	cctcaactcc	cgggaccagc	tggaaagggt	gctctttgac	1500
gagcttaggc	ttcccgcctt	ggggaagacg	caaaagacag	gcaagcgctc	caccagcgcc	1560
gcggtgctgg	aggccctacg	ggaggcccac	cccatcgtgg	agaagatcct	ccagcaccgg	1620
gagctcacca	agctcaagaa	cacctacgtg	gaccccctcc	caagcctcgt	ccacccgagg	1680
acgggccgcc	tccacacccg	cttcaaccag	acggccacgg	ccacggggag	gcttagtagc	1740
tccgacccca	acctgcagaa	catccccgtc	cgcaccccct	tgggccagag	gatccgccgg	1800
gccttcgtgg	ccgaggcggg	ttgggcgttg	gtggccctgg	actatagcca	gatagagctc	1860
cgcgtcctcg	cccacctctc	cggggacgaa	aacctgatca	gggtcttcca	ggagggaag	1920
gacatcgcca	cccagaccgc	aagctggatg	ttcggcgtcc	ccccggaggc	cgtggacccc	1980
ctgatgcgcc	gggcggccaa	gacggtgaac	ttcggcgtcc	tctacggcat	gtccgcccat	2040
aggctctccc	aggagcttgc	catcccctac	gaggaggcgg	tggcctttat	agagcgctac	2100
ttccaaagct	tccccaaggt	gcgggcctgg	atagaaaaga	ccctggagga	ggggaggaag	2160
cggggctacg	tggaaaccct	cttcggaaga	aggcgctacg	tgcccgacct	caacgcccgg	2220
gtgaagagcg	tcagggaggc	cgcggagcgc	atggccttca	acatgcccgt	ccagggcacc	2280
gccgccgacc	tcatgaagct	cgccatggtg	aagctcttcc	cccgcctccg	ggagatgggg	2340
gcccgcatgc	tcctccaggt	ccacaacgag	ctcctcctgg	aggcccccca	agcgcgggcc	2400
gaggaggtgg	cggctttggc	caaggaggcc	atggagaagg	cctatcccct	cgccgtgccc	2460
ctggaggtgg	aggtggggat	gggggaggac	tggctttccg	ccaagggtca	ccaccaccac	2520
caccac						2526

<210> 102

<211> 2526

<212> DNA

<213> Artificial Sequence

<223> Synthetic

<400> atgaatteeg aggegatget teegetettt gaacceaaag geegggteet eetggtggae 60 ggccaccacc tggcctaccg caccttette gccctgaagg gcctcaccac gagccggggc 120 180 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240 tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc 300 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 360 gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc 420 480 atceteaceg cegacegega cetetaceaa etegteteeg acegegtege egteeteeae cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag 540 cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag 600 ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg 720 gaagacctca ggctctcctt ggagctctcc cgggtgcgca ccgacctccc cctggaggtg 780 gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg 840 gagttcggca gcctcctcca cgagttcggc ctcctggagg cccccgcccc cctggaggag 900 gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc 960 atgtgggcgg agcttaaagc cctggccgcc tgcaggggcg gccgcgtgca ccgggcagca 1020 gaccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc 1080 gccgtcttgg cctcgaggga ggggctagac ctcgtgcccg gggacgaccc catgctcctc 1140 gcctacctcc tggacccttc gaacaccacc cccgagggg tggcgcggcg ctacgggggg 1200 gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc 1260 cttaagcgcc tcgagggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1320 ctctcccggg tcctggccca tatggaggcc accggggtac ggcgggacgt ggcctacctt 1380 caggcccttt ccctggagct tgcggaggag atccgccgcc tcgaggagga ggtcttccgc 1440 ttggcgggcc acccettcaa cetcaactee egggaceage tggaaagggt getetttgae 1500 gagettagge ttecegeett ggggaagaeg caaaagaeag geaagegete caecagegee 1560 gcggtgctgg aggccctacg ggaggcccac cccatcgtgg agaagatcct ccagcaccgg 1620 gageteacea ageteaagaa cacetaegtg gaceeeetee caageetegt ecaceegagg 1680 acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc 1740 tccgacccca acctgcagaa catccccgtc cgcaccccct tgggccagag gatccgccgg 1800 gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc 1860 1920 cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggtcttcca ggaggggaag gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccggaggc cgtggacccc 1980 2040 ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat 2100 aggetetece aggagettge catecectae gaggaggegg tggeetttat agagegetae ttccaaagct tccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag 2160 2220 cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgacct caacgcccgg 2280 gtgaagagcg tcagggaggc cgcggaggcc atggccttca acatgcccgt ccagggcacc gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg 2340 gcccgcatgc tcctccaggt ccacaacgag ctcctcctgg aggcccccca agcgcgggcc 2400 gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc 2460 ctggaggtgg aggtggggat gggggaggac tggctttccg ccaagggtca ccaccaccac 2520 2526 caccac

<210> 103

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 103 atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 60 ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc 120 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac 180 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240 tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc 300 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 360 geggaegaeg ttetegeeae eetggeeaag aaggeggaaa aggaggggta egaggtgege 420 atceteaceg cegacegega cetetaceaa etegteteeg acegegtege egteeteeae 480 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag 540 cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag 600

ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 720 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg gaagacetca ggeteteett ggagetetee egggtgegea eegaeeteee eetggaggtg 780 gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg 840 gagtteggea geeteeteea egagttegge eteetggagg eeeeegeeee eetggaggag 900 geceeetgge eecegeegga aggggeette gtgggetteg teeteteeeg eecegageee 960 atgtgggegg agettaaage eetggeegee tgeaggggeg geegegtgea eegggeagea 1020 gaccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc 1080 gccgtcttgg cctcgaggga ggggctagac ctcgtgcccg gggacgaccc catgctcctc 1140 gcctacctcc tggaccettc gaacaccacc cecgaggggg tggegeggeg ctacgggggg 1200 gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc 1260 cttaagcgcc tcgagggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1320 ctctcccggg tcctggccca tatggaggcc accggggtac ggcgggacgt ggcctacctt 1380 caggccettt ccctggaget tgeggaggag atccgccgcc tcgaggagga ggtettccgc 1440 ttggcgggcc acceetteaa eeteaaetee egggaeeage tggaaagggt getetttgae 1500 gagettagge ttecegeett ggggaagaeg caaaagaeag geaagegete caecagegee 1560 geggtgetgg aggccctacg ggaggcccac cccatcgtgg agaagatcct ccagcaccgg 1620 gageteacea ageteaagaa eacetaegtg gaeeeeetee caageetegt eeaceegagg 1680 acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc 1740 tecgaececa acetgeagaa cateceegte egeaececet tgggeeagag gateegeegg 1800 gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc 1860 egegteeteg eccacetete eggggaegaa aacetgatea gggtetteea ggaggggaag 1920 gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccggaggc cgtggacccc 1980 ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat 2040 aggetetece aggagettge catecectae gaggaggegg tggeetttat agagegetae 2100 ttccaaagct tccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag 2160 cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgacct caacgcccgg 2220 gtgaagagcg tcagggaggc cgcggagcgc atggccttca acatgcccgt ccagggcacc 2280 gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg 2340 gecegeatge teetecaggt egecaaegag eteeteetgg aggeeeceea agegegggee 2400 gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccqtqccc 2460

ctggaggtgg aggtggggat gggggaggac tggctttccg ccaagggtca ccaccaccac 2520 caccac 2526 <210> 104 2526 <211> <212> DNA <213> Artificial Sequence <220> <223> Synthetic <400> atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 60 ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc 120 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac 180 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240 tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc 300 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 360 geggaegaeg ttetegeeae eetggeeaag aaggeggaaa aggaggggta egaggtgege 420 atceteaceg eegacegega cetetaceaa etegteteeg acegegtege egteeteeae 480 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag 540 cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag 600 ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg 720 gaagacetca ggeteteett ggagetetee egggtgegea eegaceteee eetggaggtg 780 gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg 840 gagtteggea geeteeteea egagttegge eteetggagg eeceegeeee eetggaggag 900 gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc 960 atgtgggcgg agcttaaagc cctggccgcc tgcaggggcg gccgcgtgca ccgggcagca 1020 gacccettgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc 1080 gccgtcttgg cctcgaggga ggggctagac ctcgtgcccg gggacgaccc catgctcctc 1140 gectacetee tggaceette gaacaceace eeegagggg tggegeggeg etaegggggg 1200

1260

gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc

```
1320
cttaagcgcc tcgagggga ggagaagctc ctttggctct accacgaggt ggaaaagccc
ctctcccggg tcctggccca tatggaggcc accggggtac ggcgggacgt ggcctacctt
                                                                     1380
caggcccttt ccctggagct tgcggaggag atccgccgcc tcgaggagga ggtcttccgc
                                                                     1440
                                                                     1500
ttggcgggcc accecttcaa cetcaaetee egggaccage tggaaagggt getetttgae
gagettagge ttecegeett gaagaagaeg aagaagaeag geaagegete caceagegee
                                                                     1560
geggtgctgg aggccctacg ggaggcccac cccatcgtgg agaagatcct ccagcaccgg
                                                                     1620
                                                                     1680
gageteacea ageteaagaa eacetaegtg gaeeeeetee eaageetegt eeaceegagg
acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc
                                                                     1740
teegaceeca acetgeagaa cateecegte egeaceeect tgggeeagag gateegeegg
                                                                     1800
gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc
                                                                     1860
                                                                     1920
egegteeteg eccaectete eggggaegaa aacetgatea gggtetteea ggaggggaag
gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccggaggc cgtggacccc
                                                                     1980
ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat
                                                                     2040
aggetetece aggagettge catecectae gaggaggegg tggeetttat agagegetae
                                                                     2100
ttccaaagct tccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag
                                                                     2160
cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgacct caacgcccgg
                                                                     2220
gtgaagageg teagggagge egeggagege atggeettea acatgeeegt eeagggeace
                                                                     2280
gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg
                                                                     2340
gecegeatge teeteeaggt egecaaegag eteeteetgg aggeeeeea agegegggee
                                                                     2400
gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc
                                                                     2460
ctggaggtgg aggtggggat gggggaggac tggctttccg ccaagggtca ccaccaccac
                                                                     2520
caccac
                                                                     2526
```

<210> 105

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 105

atgaattcgg ggatgctgcc cctctttgag cccaagggcc gggtcctcct ggtggacggc

60

120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 180 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cqccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 540 gggtacetca teacecegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aagctctcct gggacctggc caaggtgcgc accgacctgc ccctggaggt ggacttcgcc 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agceteetee aegagttegg cettetggaa ageeceaagg ceetggagga ggeeceetgg 900 960 ccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 etggaccett egaacaccae eecegagggg gtggeeegge getaeggegg ggagtggaeg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeegge etegaggeeg aggtetteeg eetggeegge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1500 cttcccgcca tcggcaagac gcaaaagacc ggcaagcgct ccaccagcgc cgccgtcctq 1560 gaggccetce gegaggccca ccccategtg gagaagatec tgcagtaceg ggagetcace 1620 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 aacetecaga acateceegt eegeaceeeg ettgggeaga ggateegeeg ggeetteate 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920

1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 2040 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2100 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 2280 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagaggcc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 106

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 106 atgaattegg ggatgetgee cetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ceggtgcagg eggtetaegg ettegceaag ageeteetea aggeeeteaa ggaggaeggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 acegeegaca aagacettta eeageteett teegacegea teeaegteet eeaceeegag 480 gggtacetca teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780

aaaaggcggg agcc	cgaccg ggagaggct	t agggcctttc	tggagaggct	tgagtttggc	840
agcctcctcc acga	gttegg cettetgga	a agccccaagg	ccctggagga	ggccccctgg	900
cccccgccgg aagg	ggcctt cgtgggctt	gtgctttccc	gcaaggagcc	catgtgggcc	960
gatettetgg ceet	ggccgc cgccagggg	c ggccgcgtcc	accgggcccc	cgagccttat	1020
aaagccctca ggga	cctgaa ggaggcgcg	g gggcttctcg	ccaaagacct	gagcgttctg	1080
gccctgaggg aagg	ccttgg cctcccgcc	c ggcgacgacc	ccatgctcct	cgcctacctc	1140
ctggaccctt cgaa	caccac ccccgaggg	g gtggcccggc	gctacggcgg	ggagtggacg	1200
gaggaggcgg ggga	gcgggc cgccctttc	c gagaggctct	tegecaacet	gcttaagagg	1260
cttgaggggg agga	gagget cetttgget	taccgggagg	tggagaggcc	cctttccgct	1320
gtcctggccc atat	ggaggc cacgggggt	g cgcctggacg	tggcctatct	cagggccttg	1380
teeetggagg tgge	cgagga gatcgcccg	c ctcgaggccg	aggtcttccg	cctggccggc	1440
caccccttca acct	caactc ccgggacca	g ctggaaaggg	tcctctttga	cgagctaggg	1500
cttcccgcca tcgg	caagac gcaaaagac	c ggcaagcgct	ccaccagcgc	cgccgtcctg	1560
gaggccctcc gcga	ggccca ccccatcgt	g gagaagatcc	tgcagtaccg	ggagctcacc	1620
aagctgaaga gcac	ctacat tgacccctt	g ccggacctca	tccaccccag	gacgggccgc	1680
ctccacaccc gctt	caacca gacggccac	g gccacgggca	ggctaagtag	ctccgatccc	1740
aacctccaga acat	ccccgt ccgcacccc	g cttgggcaga	ggatccgccg	ggccttcatc	1800
gccgaggagg ggtg	gctatt ggtggccct	g gactatagcc	agatagagct	cagggtgctg	1860
geceacetet eegg	cgacga gaacctgat	c cgggtcttcc	aggaggggcg	ggacatcgcc	1920
acggagaccg ccag	ctggat gttcggcgt	c ccccgggagg	ccgtggaccc	cctgatgcgc	1980
cgggcggcca agac	catcaa cttcggggt	c ctctacggca	tgtcggccca	ccgcctctcc	2040
caggagctag ccat	ccctta cgaggaggc	c caggcettea	ttgagcgcta	ctttcagagc	2100
ttccccaagg tgcg	ggcctg gattgagaaq	g accctggagg	agggcaggag	gcgggggtac	2160
gtggagaccc tctt	cggccg ccgccgctae	c gtgccagacc	tagaggcccg	ggtgaagagc	2220
gtgcgggagg cggc	cgagcg catggcctto	c aacatgcccg	tccagggcac	cgccgccgac	2280
ctcatgaagc tggc	tatggt gaagetette	c cccaggctgg	aggaaatggg	ggccaggatg	2340
ctccttcagg tcgc	caacga gctggtcct	c gaggccccaa	aagagagggc	ggaggccgtg	2400
gcccggctgg ccaa	ggaggt catggaggg	g gtgtatcccc	tggccgtgcc	cctggaggtg	2460
gaggtgggga tagg	ggagga ctggctctc	gccaaggagc	accaccacca	ccaccac	2517

<210> 107

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 107 60 atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge 120 caccacetgg cetacegeae ettecaegee etgaagggee teaecaecag eeggggggag ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgeggtga tegtggtett tgacgecaag geceeteet teegecaega ggeetaeggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacetca teaceegge etggetttgg gaaaagtacg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 840 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 900 agcetectee aegagttegg cettetggaa agceecaagg ceetggagga ggeeceetgg 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 1020 gatettetgg ceetggeege egeeagggge ggeegegtee acegggeeee egageettat aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 etggaccett egaacaceae eeeegagggg gtggeeegge getaeggegg ggagtggaeg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 cacccettca acctcaacte cegggaccag etggaaaggg teetetttga egagetaggg 1500 cttcccgcca tcggcaagac gcaaagacc ggcaagcgct ccaccagcgc cgccgtcctg 1560 gaggecetee gegaggeeea ceceategtg gagaagatee tgeagtaceg ggageteace 1620 aagetgaaga geacetacat tgacecettg eeggacetea tecaceceag gaegggeege 1680 etccacacce gettcaacca gacggccacg gecacgggca ggctaagtag etccgatece 1740 1800 aacctccaga acatccccgt cgccaccccg cttgggcaga ggatccgccg ggccttcatc gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 108

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 108 atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaeeteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420

480 accgccgaca aagacettta ccageteett teegacegea teeaegteet eeacceegag 540 gggtacetea teacecegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 600 geogactace gggeeetgae eggggaegag teegacaace tteeeggggt caagggeate ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 780 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agecteetee aegagttegg cettetggaa ageceeaagg ceetggagga ggeeeeetgg 900 ecceegeegg aaggggeett egtgggettt gtgettteee geaaggagee catgtgggee 960 1020 gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat aaagecetea gggacetgaa ggaggegegg gggetteteg ceaaagaeet gagegttetg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 ctggaccctt cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgagggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 caccccttca acctcaactc cogggaccag ctggaaaggg tcctctttga cgagctaggg 1500 ettecegeca teaagaagae geaaaagaee ggeaageget eeaceagege egeegteetg 1560 gaggecetee gegaggeeca ecceategtg gagaagatee tgeagtaceg ggageteace 1620 aagctgaaga gcacctacat tgaccccttg coggacctca tccaccccag gacgggccgc 1680 1740 etccacacce gettcaacca gaeggecaeg gecaegggea ggetaagtag etcegatece aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagetag ccatceetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg cegeegetae gtgeeagace tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340
ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagaggc ggaggccgtg
gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg
gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 109

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 109

60. atgaattegg ggatgetgee cetetttgag eecaagggee gggteeteet ggtggaegge caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacgag 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacetea teaceegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agecteetee aegagttegg cettetggaa ageceeaagg ceetggagga ggeeeeetgg 900 ccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140

ctggaccett cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 1260 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 1440 tecetggagg tggcegagga gategeeege etegaggeeg aggtetteeg eetggeegge caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1500 1560 cttcccgcca tcggcaagac gcaaaagacc ggcaagcgct ccaccagcgc cgccgtcctg gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1680 1740 etccacacce gettcaacca gacggccacg gecacgggca ggctaagtag etccgatece aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 1860 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagetag ccatceetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 110

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 110

atgaattegg ggatgetgee eetetttgag cecaagggee gggteeteet ggtggaegge caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgeggtga tegtggtett tgacgecaag geceeteet teegecaega ggeetaeggg 240 300 gggtacaagg cgggccgggc cgagacggag gaggactttc cccggcaact cgccctcatc aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacetca teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg aageteteet gggacetgge caaggtgege acegacetge eeetggaggt ggacttegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 900 agcctcctcc acgagttcgg ccttctggaa agccccaagg ccctggagga ggccccctgg ccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egeeaggge ggeegegtee acegggeece egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 ctggaccett cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cetttggctt taccgggagg tggagaggcc cetttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 cacccettca acetcaacte eegggaecag etggaaaggg teetetttga egagetaggg 1500 ettecegeca teggeaagae geaaaagaee ggeaageget eeaceagege egeegteetg 1560 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860

60

1920 geceaectet eeggegaega gaacetgate egggtettee aggaggggeg ggacateeae 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 2100 caggagetag ccatecetta egaggaggee caggeettea ttgagegeta ettteagage ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 2340 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2400 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2460 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2517 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac

<210> 111

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 111 atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ceggtgcagg eggtctaegg ettegccaag agecteetca aggecetcaa ggaggaeggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc aaggagetgg tggaceteet ggggtteaeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacetca teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720

aagctctcct	gggacctggc	caaggtgcgc	accgacctgc	ccctggaggt	ggacttcgcc	780
aaaaggcggg	agcccgaccg	ggagaggctt	agggcctttc	tggagaggct	tgagtttggc	840
agcctcctcc	acgagttcgg	ccttctggaa	agccccaagg	ccctggagga	ggccccctgg	900
cccccgccgg	aaggggcctt	cgtgggcttt	gtgctttccc	gcaaggagcc	catgtgggcc	960
gatcttctgg	ccctggccgc	cgccaggggc	ggccgcgtcc	accgggcccc	cgagccttat	1020
aaagccctca	gggacctgaa	ggaggcgcgg	gggcttctcg	ccaaagacct	gagcgttctg	1080
gccctgaggg	aaggccttgg	cctcccgccc	ggcgacgacc	ccatgctcct	cgcctacctc	1140
ctggaccctt	cgaacaccac	ccccgagggg	gtggcccggc	gctacggcgg	ggagtggacg	1200
gaggaggcgg	gggagcgggc	cgccctttcc	gagaggctct	tcgccaacct	gcttaagagg	1260
cttgaggggg	aggagaggct	cctttggctt	taccgggagg	tggagaggcc	cctttccgct	1320
gtcctggccc	atatggaggc	cacgggggtg	cgcctggacg	tggcctatct	cagggccttg	1380
tccctggagg	tggccgagga	gatcgcccgc	ctcgaggccg	aggtcttccg	cctggccggc	1440
caccccttca	acctcaactc	ccgggaccag	ctggaaaggg	tcctctttga	cgagctaggg	1500
cttcccgcca	tcggcaagac	gcaaaagacc	ggcaagcgct	ccaccagcgc	cgccgtcctg	1560
gaggccctcc	gcgaggccca	ccccatcgtg	gagaagatcc	tgcagtaccg	ggagctcacc	1620
aagctgaaga	gcacctacat	tgaccccttg	ccggacctca	tccaccccag	gacgggccgc	1680
ctccacaccc	gcttcaacca	gacggccacg	gccacgggca	ggctaagtag	ctccgatccc	1740
aacctccaga	acatccccgt	ccgcaccccg	cttgggcaga	ggatccgccg	ggccttcatc	1800
gccgaggagg	ggtggctatt	ggtggccctg	gactatagcc	agatagagct	cagggtgctg	1860
gcccacctct	ccggcgacga	gaacctgatc	cgggtcttcc	aggaggggcg	ggacatccac	1920
acggagaccg	ccagctggat	gttcggcgtc	ccccgggagg	ccgtggaccc	cctgatgcgc	1980
cgggcggcca	agaccatcaa	cttcggggtc	ctctacggca	tgtcggccca	ccgcctctcc	2040
caggagctag	ccatccctta	cgaggaggcc	caggccttca	ttgagcgcta	ctttcagagc	2100
ttccccaagg	tgcgggcctg	gattgagaag	accctggagg	agggcaggag	gcgggggtac	2160
gtggagaccc	tcttcggccg	ccgccgctac	gtgccagacc	tagaggcccg	ggtgaagagc	2220
gtgcgggagg	cggccgagcg	catggccttc	aacatgcccg	tccagggcac	cgccgccgac	2280
ctcatgaagc	tggctatggt	gaagctcttc	cccaggctgg	aggaaatggg	ggccaggatg	2340
ctccttcagg	tcgccaacga	gctggtcctc	gaggccccaa	aagagaggc	ggaggccgtg	2400
gcccggctgg	ccaaggaggt	catggagggg	gtgtatcccc	tggccgtgcc	cctggaggtg	2460
gaggtgggga	taggggagga	ctggctctcc	gccaaggagc	accaccacca	ccaccac	2517

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 112 atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 gggtacaagg egggeeggge ceceaegeeg gaggaettte eeeggeaact egeeeteate 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagacettta ccageteett tecgacegea tecaegteet ccaeceegag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 780 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agcctcctcc acgagttcgg ccttctggaa agccccaagg ccctggagga ggccccctgg 900 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 etggaecett egaacaccae eecegagggg gtggeeegge getaeggegg ggagtggaeg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tccctggagg tggccgagga gatcgcccgc ctcgaggccg aggtcttccg cctggccggc 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctcagg 1500

1560 cttcccaagt tgaagaagac gaagaagacc ggtaagcgct ccaccagcgc cgccgtcctg gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 1680 aagetgaaga geacetaeat tgaeeeettg eeggaeetea teeaeeeeag gaegggeege etccacacce gettcaacca gacggccacg gecacgggca ggctaagtag etccgatece 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 egggeggeca agaccateaa etteggggte etetaeggea tgteggeeca eegeetetee 2040 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg eegeegetae gtgeeagace tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 113

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 113

atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacetgg eetacegeae ettecaegee etgaagggee teaceaeag eeggggggag 120 eeggtgeagg eggtetaegg ettegeeaag ageeteetea aggeeeteaa ggaggaeggg 180 gaegeggtga tegtggtett tgaegeeaag geeeeteet teegeeaega ggeetaeggg 240 gggtaeaagg egggeeggge eeceaegeeg gaggaettte eeeggeaaet egeeeteate 300 aaggagetgg tggaeeteet ggggetggeg egeetegagg teeegggeta egaggeggae 360

420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 480 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 540 gggtacetea teacecegge etggetttgg gaaaagtacg geetgaggee egaceagtgg 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 840 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 900 agcetectee aegagttegg cettetggaa ageeecaagg ceetggagga ggeeecetgg cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecagggge ggeegegtee acegggeeee egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 1200 ctggaccctt cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 1500 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaagg cttcccaaga tcaacaagac gaagaagacc ggtaagcgct ccaccagcgc cgccgtcctg 1560 1620 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc aagctgaaga gcacctacat tgaccccttg coggacctca tccaccccag gacgggccgc 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 1800 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1860 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 2100 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2160 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2220 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc

gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagaagaggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggaggg gtgtatcccc tggccgtgc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 114

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 114

atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 acegeegaca aagaeettta eeageteett teegaeegea teeaegteet eeaceeegag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege aeegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agecteetee aegagttegg cettetggaa ageceeaagg ceetggagga ggeeeeetgg 900 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egeeagggge ggeegegtee acegggeece egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 etggaccett cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggcgg gggagcgggc cgccctttcc gagaggctct tcgccaacct gcttaagagg 1260 cttgagggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 caccccttca acctcaactc cogggaccag ctggaaaggg tcctctttga cgagctaagg 1500 atteccaaga teaagaagae geataagaee ggtaageget ceaecagege egeegteetg 1560 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagetgaaga geacetacat tgacecettg ceggacetea tecaceceag gaegggeege 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 1800 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 geceacetet eeggegaega gaacetgate egggtettee aggaggggeg ggacateeae 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagetag ccatecetta egaggagee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 2517

<210> 115

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 115 60 atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 acegeegaea aagaeettta eeageteett teegaeegea teeaegteet eeaeeeegag 480 540 gggtacetea teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg geegaetaee gggeeetgae eggggaegag teegaeaaee tteeeggggt caagggeate 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agceteetee aegagttegg eettetggaa ageeecaagg eeetggagga ggeeeeetgg 900 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egeeagggge ggeegegtee acegggeeee egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 etggaecett egaacaccae eecegagggg gtggeeegge getaeggegg ggagtggaeg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 teeetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctcagg 1500 etteccaagt tgaagaagac gaagaagace ggtaageget eeageagege egeegteetg 1560 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860

gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 egggeggeca agaccateaa etteggggte etetaeggea tgteggeeca eegeetetee 2040 caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg eegeegetae gtgeeagace tagaggeeeg ggtgaagage 2220 gtgegggagg eggeegageg catggeette aacatgeeeg teeagggeae egeegeegae 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 116

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 116 atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 540 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg geogaetace gggeeetgae eggggaegag teegaeaace tteeeggggt caagggeate 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720

aagctctcct	gggacctggc	caaggtgcgc	accgacctgc	ccctggaggt	ggacttcgcc	780
aaaaggcggg	agcccgaccg	ggagaggctt	agggcctttc	tggagaggct	tgagtttggc	840
agcctcctcc	acgagttcgg	ccttctggaa	agccccaagg	ccctggagga	ggccccctgg	900
ccccgccgg	aaggggcctt	cgtgggcttt	gtgctttccc	gcaaggagcc	catgtgggcc	960
gatcttctgg	ccctggccgc	cgccaggggc	ggccgcgtcc	accgggcccc	cgagccttat	1020
aaagccctca	gggacctgaa	ggaggcgcgg	gggcttctcg	ccaaagacct	gagcgttctg	1080
gccctgaggg	aaggccttgg	cctcccgccc	ggcgacgacc	ccatgctcct	cgcctacctc	1140
ctggaccctt	cgaacaccac	ccccgagggg	gtggcccggc	gctacggcgg	ggagtggacg	1200
gaggaggcgg	gggagcgggc	cgccctttcc	gagaggctct	tcgccaacct	gcttaagagg	1260
cttgaggggg	aggagaggct	cctttggctt	taccgggagg	tggagaggcc	cctttccgct	1320
gtcctggccc	atatggaggc	cacgggggtg	cgcctggacg	tggcctatct	cagggccttg	1380
tccctggagg	tggccgagga	gatcgcccgc	ctcgaggccg	aggtcttccg	cctggccggc	1440
caccccttca	acctcaactc	ccgggaccag	ctggaaaggg	tcctctttga	cgagctcagg	1500
cttcccaagt	tgaagaagac	gaagaagacc	ggtaagcgct	ccaccagcgc	cgccctcctg	1560
gaggccctcc	gcgaggccca	ccccatcgtg	gagaagatcc	tgcagtaccg	ggagctcacc	1620
aagctgaaga	gcacctacat	tgaccccttg	ccggacctca	tccaccccag	gacgggccgc	1680
ctccacaccc	gcttcaacca	gacggccacg	gccacgggca	ggctaagtag	ctccgatccc	1740
aacctccaga	acatccccgt	ccgcaccccg	cttgggcaga	ggatccgccg	ggccttcatc	1800
gccgaggagg	ggtggctatt	ggtggccctg	gactatagcc	agatagagct	cagggtgctg	1860
gcccacctct	ccggcgacga	gaacctgatc	cgggtcttcc	aggaggggg	ggacatccac	1920
acggagaccg	ccagctggat	gttcggcgtc	ccccgggagg	ccgtggaccc	cctgatgcgc	1980
cgggcggcca	agaccatcaa	cttcggggtc	ctctacggca	tgtcggccca	ccgcctctcc	2040
caggagctag	ccatccctta	cgaggaggcc	caggccttca	ttgagcgcta	ctttcagagc	2100
ttccccaagg	tgcgggcctg	gattgagaag	accctggagg	agggcaggag	gcgggggtac	2160
gtggagaccc	tcttcggccg	ccgccgctac	gtgccagacc	tagaggcccg	ggtgaagagc	2220
gtgcgggagg	cggccgagcg	catggccttc	aacatgcccg	tccagggcac	cgccgccgac	2280
ctcatgaagc	tggctatggt	gaagctcttc	cccaggctgg	aggaaatggg	ggccaggatg	2340
ctccttcagg	tcgccaacga	gctggtcctc	gaggccccaa	aagagagggc	ggaggccgtg	2400
gcccggctgg	ccaaggaggt	catggagggg	gtgtatcccc	tggccgtgcc	cctggaggtg	2460
gaggtgggga	taggggagga	ctggctctcc	gccaaggagc	accaccacca	ccaccac	2517

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 117 60 atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc 120 180 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac gggtacaagg cegtettegt ggtetttgae gecaaggeee ceteetteeg ceaegaggee 240 tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc 300 360 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc 420 480 atcotcaccg cogacogoga cototaccaa ctogtotocg acogogtogo ogtoctocac 540 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag 600 cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccg aggggtcagg 660 ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg 720 gaagacetca ggeteteett ggagetetee egggtgegea eegaceteee eetggaggtg 780 840 gacctegece aggggeggga gecegacegg gaggggetta gggeetteet ggagaggetg gagtteggea geeteeteea egagttegge eteetggagg eeceegeeee eetggaggag 900 960 gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc atgtgggcgg agcttaaagc cctggccgcc tgcaggggcg gccgcgtgca ccgggcagca 1020 gacccettgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc 1080 gccgtcttgg cctcgaggga ggggctagac ctcgtgcccg gggacgaccc catgctcctc 1140 gcctacctcc tggacccttc gaacaccacc cccgaggggg tggcgcggcg ctacgggggg 1200 gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc 1260 cttaagcgcc tcgaggggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1320 eteteceggg teetggeeea tatggaggee aceggggtae ggegggaegt ggeetaeett 1380 caggecettt ceetggaget tgeggaggag atecgeegee tegaggagga ggtetteege 1440 ttggcgggcc acceettcaa cetcaactee egggaccage tggaaagggt getetttgae 1500

1560 gagettagge ttecegeett ggggaagaeg caaaagaeag geaagegete caceagegee 1620 gcggtgctgg aggccctacg ggaggcccac cccatcgtgg agaagatcct ccagcaccgg gageteacea ageteaagaa cacetaegtg gaeeeeetee caageetegt eeaceegagg 1680 acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc 1740 tecgacecca acetgeagaa cateceegte egeaceceet tgggeeagag gateegeegg 1800 gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc 1860 cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggtcttcca ggaggggaag 1920 1980 gacatccaca cccagaccgc aagetggatg ttcggcgtcc ccccggaggc cgtggacccc ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat 2040 2100 aggetetece aggagettge catecectae gaggaggegg tggeetttat agagegetae ttccaaagct tccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag 2160 eggggetacg tggaaaccct etteggaaga aggegetacg tgeeegacet caacgeeegg 2220 2280 gtgaagagcg tcagggaggc cgcggagcgc atggccttca acatgcccgt ccagggcacc gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg 2340 gcccgcatgc tcctccaggt cgccaacgag ctcctcctgg aggcccccca agcgcgggcc 2400 2460 gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc ctggaggtgg aggtggggat gggggaggac tggctttccg ccaagggtca ccaccaccac 2520 2526 caccac

<210> 118

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 118

atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 60 ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc 120 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac 180 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240 tacgaggcct acaaggcggg gagggccccg accccgagg acttccccg gcagctcgcc 300

ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 360 420 geggaegaeg ttetegeeae cetggeeaag aaggeggaaa aggaggggta egaggtgege atceteaceg cegacegega cetetaceaa etegteteeg acegegtege egtecteeae 480 540 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag 600 ggcatcgggg agtataccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 720 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg gaagacetca ggeteteett ggagetetee egggtgegea eegaceteee eetggaggtg 780 gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg 840 900 gagtteggea geeteeteea egagttegge eteetggagg eeeeegeeee eetggaggag geceeetgge eeeegeegga aggggeette gtgggetteg teeteteeeg eeeegageee 960 1020 atgtgggcgg agcttaaagc cetggccgcc tgcaggggcg gccgcgtgca ccgggcagca gaccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc 1080 geegtettgg cetegaggga ggggetagae etegtgeeeg gggaegaeee catgeteete 1140 gectacetee tggaceette gaacaccace eeegaggggg tggegeggeg etacgggggg 1200 gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc 1260 cttaagcgcc tcgaggggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1320 ctctcccggg tcctggccca tatggaggcc accggggtac ggcgggacgt ggcctacctt 1380 caggccettt ccctggaget tgcggaggag atccgccgcc tcgaggagga ggtcttccgc 1440 ttggcgggcc acccettcaa cetcaactee egggaccage tggaaagggt getetttgae 1500 gagettagge ttecegeett ggggaagaeg caaaagaeag geaagegete caceagegee 1560 geggtgctgg aggccctacg ggaggcccac cccatcgtgg agaagatcct ccagcaccgg 1620 gageteacea ageteaagaa eacetaegtg gaceceetee caageetegt eeaceegagg 1680 acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc 1740 teegaceeca acetgeagaa cateecegte egeaceeect tgggeeagag gateegeegg 1800 gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc 1860 egegteeteg eecacetete eggggaegaa aacetgatea gggtetteea ggaggggaag 1920 gacatecaca eccagacege aagetggatg tteggegtee eeceggagge egtggacece 1980 ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat 2040 aggetetece aggagettge catecectae gaggaggegg tggeetttat agagegetae 2100 ttccaaagct tccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag 2160

cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgacct caacgcccgg 2220 gtgaagagcg tcagggagc cgcggagcgc atggccttca acatgcccgt ccagggcacc 2280 gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg 2340 gcccgcatgc tcctccaggt cgccaacgag ctcctcctgg aggccccca agcgcgggcc 2400 gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc 2460 ctggaggtgg aggtgggat gggggaggac tggctttccg ccaagggtca ccaccaccac 2520 caccac

<210> 119

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 60 ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc 120 180 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac 240 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc tacgaggeet acaaggeggg gagggeeeeg aceeeegagg aetteeeeeg geagetegee 300 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 360 geggaegaeg ttetegeeae eetggeeaag aaggeggaaa aggaggggta egaggtgege 420 atecteaceg eegacegega eetetaceaa etegteteeg acegegtege egteeteeae 480 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag 540 cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag 600 ggcatcaggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 720 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg gaagacetea ggeteteett ggagetetee egggtgegea eegaceteee eetggaggtg 780 gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg 840 gagtteggea geeteeteea egagttegge eteetggagg eeeeegeeee eetggaggag 900 gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc 960

atgtgggcgg	agcttaaagc	cctggccgcc	tgcaggggcg	gccgcgtgca	ccgggcagca	1020
gaccccttgg	cggggctaaa	ggacctcaag	gaggtccggg	gcctcctcgc	caaggacctc	1080
gccgtcttgg	cctcgaggga	ggggctagac	ctcgtgcccg	gggacgaccc	catgctcctc	1140
gcctacctcc	tggacccttc	gaacaccacc	cccgaggggg	tggcgcggcg	ctacgggggg	1200
gagtggacgg	aggacgccgc	ccaccgggcc	ctcctctcgg	agaggctcca	tcggaacctc	1260
cttaagcgcc	tcgaggggga	ggagaagctc	ctttggctct	accacgaggt	ggaaaagccc	1320
ctctcccggg	tcctggccca	tatggaggcc	accggggtac	ggcgggacgt	ggcctacctt	1380
caggcccttt	ccctggagct	tgcggaggag	atccgccgcc	tcgaggagga	ggtcttccgc	1440
ttggcgggcc	accccttcaa	cctcaactcc	cgggaccagc	tggaaagggt	gctctttgac	1500
gagcttaggc	ttcccgcctt	ggggaagacg	caaaagacag	gcaagcgctc	caccagcgcc	1560
gcggtgctgg	aggccctacg	ggaggcccac	cccatcgtgg	agaagatcct	ccagcaccgg	1620
gagctcacca	agctcaagaa	cacctacgtg	gaccccctcc	caagcctcgt	ccacccgagg	1680
acgggccgcc	tccacacccg	cttcaaccag	acggccacgg	ccacggggag	gcttagtagc	1740
tccgacccca	acctgcagaa	catccccgtc	cgcaccccct	tgggccagag	gatccgccgg	1800
gccttcgtgg	ccgaggcggg	ttgggcgttg	gtggccctgg	actatagcca	gatagagctc	1860
cgcgtcctcg	cccacctctc	cggggacgaa	aacctgatca	gggtcttcca	ggaggggaag	1920
gacatccaca	cccagaccgc	aagctggatg	ttcggcgtcc	ccccggaggc	cgtggacccc	1980
ctgatgcgcc	gggcggccaa	gacggtgaac	ttcggcgtcc	tctacggcat	gtccgcccat	2040
aggctctccc	aggagcttgc	catcccctac	gaggaggcgg	tggcctttat	agagcgctac '	2100
ttccaaagct	tccccaaggt	gcgggcctgg	atagaaaaga	ccctggagga	ggggaggaag	2160
cggggctacg	tggaaaccct	cttcggaaga	aggcgctacg	tgcccgacct	caacgcccgg	2220
gtgaagagcg	tcagggaggc	cgcggagcgc	atggccttca	acatgcccgt	ccagggcacc	2280
gccgccgacc	tcatgaagct	cgccatggtg	aagctcttcc	cccgcctccg	ggagatgggg	2340
gcccgcatgc	tcctccaggt	cgccaacgag	ctcctcctgg	aggcccccca	agcgcgggcc	2400
gaggaggtgg	cggctttggc	caaggaggcc	atggagaagg	cctatcccct	cgccgtgccc	2460
ctggaggtgg	aggtggggat	gggggaggac	tggctttccg	ccaagggtca	ccaccaccac	2520
caccac						2526

<210> 120

<211> 2517

<212> DNA

<213> Artificial Sequence

<223> Synthetic

<400> 120 atgaattegg ggatgetgee cetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 360 aaggagetgg tggaceteet ggggtteaeg egeetegagg teeegggeta egaggeggae 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agcetectee aegagttegg cettetggaa ageeccaagg ceetggagga ggeeceetgg 900 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc gatettetgg ceetggeege egeeagggge ggeegegtee acegggeece egageettat 1020 1080 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 etggaecett egaacaceae eecegagggg gtggeeegge getaeggegg ggagtggaeg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 teeetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctcagg 1500 etteccaagt tgaagaagae gaagaagaee ggtaageget eeageagege egeegteetg 1560 gaggeeetee gegaggeeea ceceategtg gagaagatee tgeagtaceg ggageteace 1620 aagetgaaga geacetaeat tgacecettg eeggacetea tecaceceag gaegggeege 1680

ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 egggeggeca agaceateaa etteggggte etetaeggea tgteggeeca eegeetetee 2040 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg eegeegetae gtgeeagace tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 etectteagg tegecaacga getggteete gaggeeceaa aagagaggge ggaggeegtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 121

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 121 atgaattegg ggatgetgee cetetttgag eccaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc cgagacggag gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540

600 geogaetace gggeeetgae eggggaegag teegaeaace tteeeggggt caagggeate 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 780 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agcctcctcc acgagttcgg ccttctggaa agccccaagg ccctggagga ggccccctgg 900 ecceegeegg aaggggeett egtgggettt gtgettteee geaaggagee catgtgggee 960 1020 gatettetgg ceetggeege cgccagggge ggccgcgtcc accgggcccc cgagcettat 1080 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1140 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc ctggaccctt cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gteetggeee atatggagge caegggggtg egeetggaeg tggeetatet cagggeettg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 1500 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctcagg cttcccaagt tgaagaagac gaagaagacc ggtaagcgct ccagcagcgc cgccgtcctg 1560 1620 gaggecetee gegaggeeea ecceategtg gagaagatee tgeagtaceg ggageteace aagetgaaga geacetaeat tgacecettg eeggacetea tecaceceag gaegggeege 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc egggeggeca agaccateaa etteggggte etetaeggea tgteggeeca eegeetetee 2040 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg cegeegetac gtgecagacc tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 122

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 122

atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggag 120 ceggtgcagg eggtetaegg ettegecaag ageeteetea aggeeeteaa ggaggaeggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgcctcatc aaggagetgg tggaceteet ggggtteaeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tecgacegca tecaegteet ecaeceegag 480 gggtacetca teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caatggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg aageteteet gggaeetgge eaaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agceteetee aegagttegg eettetggaa ageeceaagg eeetggagga ggeeeeetgg 900 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1020 aaageeetea gggaeetgaa ggaggegegg gggetteteg ceaaagaeet gagegttetg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 ctggaccctt cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260

cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 caccccttca acctcaactc cogggaccag ctggaaaggg tcctctttga cgagctcagg 1500 cttcccaagt tgaagaagac gaagaagacc ggtaagcgct ccagcagcgc cgccgtcctg 1560 gaggeeetee gegaggeeea eeceategtg gagaagatee tgeagtaceg ggageteace 1620 aagetgaaga geacetaeat tgacecettg eeggacetea tecaceceag gaegggeege 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ceggegaega gaacetgate egggtettee aggaggggeg ggacatecae 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg eegeegetae gtgeeagace tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 123

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 123

atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 60 caccacetgg cetaeegeae etteeaegee etgaagggee teaeeaegag eeggggggag 120

ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggtteaeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagacettta ccageteett teegacegea teeaegteet eeaeeeegag 480 gggtacctca tcacccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc ggggagaaga cgcagaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge ceetggaggt ggaettegee 780 840 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc agectectee aegagttegg cettetggaa agececaagg ceetggagga ggeceeetgg 900 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1020 1080 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 etggaecett egaacaecae eecegagggg gtggeeegge getaeggegg ggagtggaeg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 1500 caccccttca acctcaactc cogggaccag ctggaaaggg tcctctttga cgagctcagg 1560 etteccaagt tgaagaagae gaagaagaee ggtaageget eeageagege egeegteetg gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 1680 aagetgaaga geacetaeat tgacecettg ceggacetea tecaceceag gaegggeege ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980

cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 2280 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 124

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 124 atgaattegg ggatgetgee cetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ceggtgcagg eggtetaegg ettegecaag ageeteetea aggeeeteaa ggaggaeggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc aaggagetgg tggaceteet ggggtteaeg egeetegagg teeegggeta egaggeggae 360 420 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc acegeegaea aagaeettta eeageteett teegaeegea teeaegteet eeaeeeegag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatg 600 ggggagaaga cggggaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege aeegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840

900 agectectee aegagttegg cettetggaa ageceeaagg ceetggagga ggeeecetgg 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1020 1080 aaageeetea gggaeetgaa ggaggegegg gggetteteg eeaaagaeet gagegttetg gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 ctggaccett cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 1320 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1380 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 1500 cacccettca acctcaacte cegggaccag etggaaaggg teetetttga egageteagg cttcccaagt tgaagaagac gaagaagacc ggtaagcgct ccagcagcgc cgccgtcctg 1560 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagetgaaga geacetaeat tgacecettg eeggacetea tecaceceag gaegggeege 1680 1740 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1800 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 egggeggeea agaecateaa etteggggte etetaeggea tgteggeeea eegeetetee 2040 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 125

<211> 2517

<212> DNA

<220>

<223> Synthetic

<400> 125 atgaattcgg ggatgctgcc cctctttgag cccaagggcc gggtcctcct ggtggacggc 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ceggtgcagg eggtetaegg ettegecaag ageeteetea aggeeeteaa ggaggaeggg 180 gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc aaggagctgg tggacctcct ggggttcacg cgcctcgagg tcccgggcta cgaggcggac 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 480 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaata cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 900 agecteetee aegagttegg cettetggaa ageceeaagg ceetggagga ggeeeeetgg cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 etggaccett egaacaccae eecegagggg gtggeeegge getaeggegg ggagtggaeg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 cacccettca acctcaacte cegggaccag etggaaaggg teetetttga egageteagg 1500 cttcccaagt tgaagaagac gaagaagacc ggtaagcgct ccagcagcgc cgccgtcctg 1560 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620

1680 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc ctccacacce gettcaacca gacggccacg gecacgggca ggctaagtag ctccgatcce 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaceg ceagetggat gtteggegte ceeegggagg eegtggaeee eetgatgege 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg eegeegetac gtgeeagacc tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 etectteagg tegecaacga getggteete gaggeeceaa aagagaggge ggaggeegtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 126

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 126 atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagctgg tggacctcct ggggttcacg cgcctcgagg tcccgggcta cgaggcggac 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagacettta ccageteett teegacegea teeaegteet ecaceeegag 480

gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaagc cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 ageeteetee aegagttegg cettetggaa ageeecaagg ceetggagga ggeeeeetgg 900 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 etggaccett egaacaccae eecegagggg gtggeeegge getaeggegg ggagtggaeg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 cacccettca acctcaacte cegggaccag etggaaaggg teetetttga egageteagg 1500 etteceaagt tgaagaagae gaagaagaee ggtaageget eeageagege egeegteetg 1560 gaggeeetee gegaggeeea ceceategtg gagaagatee tgeagtaceg ggageteace 1620 aagetgaaga geacetacat tgacecettg ceggacetea tecaceceag gaegggeege 1680 etccacacce gettcaacca gacggccacg gecacgggca ggctaagtag etccgatece 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagctag ccatccetta cgaggaggcc caggcettca ttgagcgcta ctttcagagc 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg cegeegetae gtgeeagace tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340

ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagaggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggaggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 127

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 127

atgaattcgg ggatgctgcc cctctttgag cccaagggcc gggtcctcct ggtggacggc 60 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccgggggaa 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggtteaeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege aeegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tqaqtttqqc 840 ageeteetee aegagttegg eettetggaa ageeecaagg eeetggagga ggeeeeetgg 900 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecagggge ggeegegtee acegggeece egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 etggaccett egaacaceae eecegaggg gtggeeegge getaeqqegg ggaqtgqacq 1200

```
1260
gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gettaagagg
cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct
                                                                     1320
gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg
                                                                     1380
tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge
                                                                     1440
caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctcagg
                                                                     1500
etteccaagt tgaagaagac gaagaagace ggtaageget ceageagege egeegteetg
                                                                     1560
gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc
                                                                     1620
aagetgaaga geacetaeat tgaeeeettg eeggaeetea teeaeeeeag gaegggeege
                                                                     1680
ctccacacce gettcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc
                                                                     1740
aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc
                                                                     1800
gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg
                                                                     1860
gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac
                                                                     1920
acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc
                                                                     1980
egggeggeea agaccateaa etteggggte etetaeggea tgteggeeca egecetetee
                                                                     2040
caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage
                                                                     2100
ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac
                                                                     2160
gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc
                                                                     2220
gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac
                                                                     2280
ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg
                                                                     2340
ctccttcagg tcgccaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg
                                                                     2400
gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg
                                                                     2460
gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac
                                                                     2517
```

<210> 128

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 128

atgaattegg ggatgetgee eetetttgag eecaagggee gggteeteet ggtggaegge

60

caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 120 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 180 gacgcggtga tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacggg 240 300 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagacettta ccageteett teegacegea teeacgteet eeacceegag 480 540 gggtacetea teacecegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 780 aageteteet gggacetgge caaggtgege acegacetge eeetggaggt ggacttegee aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agcetectee aegagttegg cettetggaa ageeecaagg ceetggagga ggeeecetgg 900 ecceegeegg aaggggeett egtgggettt gtgettteee geaaggagee catgtgggee 960 gatettetgg ceetggeege egecagggge ggeegegtge acegggeage agaceeettg 1020 gcggggctaa aggacctcaa ggaggtccgg ggcctcctcg ccaaggacct cgccgtcttg 1080 gcctcgaggg aggggctaga cctcgtgccc ggggacgacc ccatgctcct cgcctacctc 1140 ctggaccctt cgaacaccac ccccgagggg gtggcgcggc gctacggggg ggagtggacg 1200 gaggacgccg cccaccgggc cctcctctcg gagaggctcc atcggaacct ccttaagcgc 1260 ctcgaggggg aggagaagct cctttggctc taccacgagg tggaaaagcc cctctcccgg 1320 gteetggeee atatggagge caceggggta eggegggaeg tggeetaeet teaggeeett 1380 tecetggage ttgeggagga gateegeege etegaggagg aggtetteeg ettggeggge 1440 cacccettca aceteaacte eegggaceag etggaaaggg tgetetttga egagettagg 1500 ettecegeet tgaagaagae gaagaagaea ggeaageget ceaceagege egeggtgetg 1560 gaggccctac gggaggccca ccccatcgtg gagaagatcc tccagcaccg ggagctcacc 1620 aageteaaga acacetaegt ggaceceete eeaageeteg teeaceegag gaegggeege 1680 etccacacce gettcaacca gaeggecaeg gecaegggga ggettagtag etcegaeece 1740 aacctgcaga acatccccgt ccgcaccccc ttgggccaga ggatccgccg ggccttcgtg 1800 gccgaggcgg gttgggcgtt ggtggccctg gactatagcc agatagagct ccgcgtcctc 1860 gcccacctct ccggggacga aaacctgatc agggtcttcc aggaggggaa ggacatccac 1920

acceagaceg caagetggat gtteggegte ceeeeggagg eegtggacee eetgatgege 1980 cgggcggcca agacggtgaa cttcggcgtc ctctacggca tgtccgccca taggctctcc 2040 caggagettg ccatececta egaggaggeg gtggeettta tagagegeta ettecaaage 2100 ttccccaagg tgcgggcctg gatagaaaag accctggagg aggggaggaa gcggggctac 2160 gtggaaaccc tcttcggaag aaggcgctac gtgcccgacc tcaacgcccg ggtgaagagc 2220 gtcagggagg ccgcggagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tcgccatggt gaagctcttc ccccgcctcc gggagatggg ggcccgcatg 2340 ctcctccagg tcgccaacga gctcctcctg gaggcccccc aagcgcgggc cgaggaggtg 2400 geggetttgg ccaaggagge catggagaag geetateece tegeegtgee eetggaggtg 2460 gaggtgggga tgggggagga ctggctttcc gccaagggtc accaccacca ccaccac 2517

<210> 129

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 129 atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 60 ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc 120 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac 180 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240 tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc 300 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 360 geggaegaeg ttetegeeae eetggeeaag aaggeggaaa aggaggggta egaggtgege 420 atcctcaccg ccgaccgcga cctctaccaa ctcgtctccg accgcgtcgc cgtcctccac 480 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag 540 cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag 600 ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg 720 gaagacetca ggeteteett ggagetetee egggtgegea eegaceteee eetggaggtg 780

gacctcgccc	aggggcggga	gcccgaccgg	gaggggctta	gggccttcct	ggagaggctg	840
gagttcggca	gcctcctcca	cgagttcggc	ctcctggagg	cccccgcccc	cctggaggag	900
gccccctggc	ccccgccgga	aggggccttc	gtgggcttcg	tcctctcccg	ccccgagccc	960
atgtgggcgg	agcttaaagc	cctggccgcc	tgcaggggcg	gccgcgtcca	ccgggccccc	1020
gagccttata	aagccctcag	ggacctgaag	gaggcgcggg	ggcttctcgc	caaagacctg	1080
agcgttctgg	ccctgaggga	aggccttggc	ctcccgcccg	gcgacgaccc	catgctcctc	1140
gcctacctcc	tggacccttc	gaacaccacc	cccgaggggg	tggcccggcg	ctacggcggg	1200
gagtggacgg	aggaggcggg	ggagcgggcc	gccctttccg	agaggctctt	cgccaacctg	1260
cttaagaggc	ttgaggggga	ggagaggctc	ctttggcttt	accgggaggt	ggagaggccc	1320
ctttccgctg	tcctggccca	tatggaggcc	acgggggtgc	gcctggacgt	ggcctatctc	1380
agggccttgt	ccctggaggt	ggccgaggag	atcgcccgcc	tcgaggccga	ggtcttccgc	1440
ctggccggcc	accccttcaa	cctcaactcc	cgggaccagc	tggaaagggt	cctctttgac	1500
gagctagggc	ttcccgccat	caagaagacg	caaaagaccg	gcaagcgctc	caccagcgcc	1560
gccgtcctgg	aggccctccg	cgaggcccac	cccatcgtgg	agaagatcct	gcagtaccgg	1620
gagctcacca	agctgaagag	cacctacatt	gaccccttgc	cggacctcat	ccaccccagg	1680
acgggccgcc	tccacacccg	cttcaaccag	acggccacgg	ccacgggcag	gctaagtagc	1740
tccgatccca	acctccagaa	catccccgtc	cgcaccccgc	ttgggcagag	gatccgccgg	1800
gccttcatcg	ccgaggaggg	gtggctattg	gtggccctgg	actatagcca	gatagagctc	1860
agggtgctgg	cccacctctc	cggcgacgag	aacctgatcc	gggtcttcca	ggagggggg	1920
gacatccaca	cggagaccgc	cagctggatg	ttcggcgtcc	cccgggaggc	cgtggacccc	1980
ctgatgcgcc	gggcggccaa	gaccatcaac	ttcggggtcc	tctacggcat	gtcggcccac	2040
cgcctctccc	aggagctagc	catcccttac	gaggaggccc	aggccttcat	tgagcgctac	2100
tttcagagct	tccccaaggt	gcgggcctgg	attgagaaga	ccctggagga	gggcaggagg	2160
cgggggtacg	tggagaccct	cttcggccgc	cgccgctacg	tgccagacct	agaggcccgg	2220
gtgaagagcg	tgcgggaggc	ggccgagcgc	atggccttca	acatgcccgt	ccagggcacc	2280
gccgccgacc	tcatgaagct	ggctatggtg	aagctcttcc	ccaggctgga	ggaaatgggg	2340
gccaggatgc	tccttcaggt	cgccaacgag	ctggtcctcg	aggccccaaa	agagagggcg	2400
gaggccgtgg	cccggctggc	caaggaggtc	atggagggg	tgtatcccct	ggccgtgccc	2460
ctggaggtgg	aggtggggat	aggggaggac	tggctctccg	ccaaggagca	ccaccaccac	2520
caccac						2526
	•					

<211> 2508

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 130 atggaattca ccccactttt tgacctggag gaacccccca agcgggtgct tctggtggac 60 ggccaccacc tggcctaccg caccttctat gccctgagcc tcaccacctc ccggggggag 120 180 ccggtgcaga tggtctacgg cttcgcccgg agcctcctca aggccttgaa ggaggacgga caggoggtgg togtggtott tgacgocaag gooccotoot toogcoacga ggootacgag 240 gcctacaagg cgggccgggc ccccaccccg gaggacttcc cccgccagct cgccttggtc 300 aageggetgg tggacettet gggeetggte egeetegagg eeeeggggta egaggeggae 360 gacgtcctgg gcaccctggc caagaaggcc gaaagggagg ggatggaggt gcgcatcctc 420 acgggagacc gggacttett ceageteete teegagaagg teteggteet eetgeeggae 480 540 gggaccetgg teaccecaaa ggacgtecag gagaagtacg gggtgecece ggagegetgg gtggacttcc gcgccctcac gggggaccgc tcggacaaca tccccggggt ggcggggata 600 ggggagaaga ccgcccttcg actcctcgca gagtggggga gcgtggaaaa cctcctgaag 660 aacctggacc gggtaaagcc ggactcgctc cggcgcaaga tagaggcgca cctcgaggac 720 780 etceacetet cettagaeet ggeeegeate egeacegaee tececetgga ggtggaettt aaggccctgc gccgcaggac ccccgacctg gagggcctga gggccttttt ggaggagctg 840 gagtteggaa geeteeteea egagttegge eteetgggag gggagaagee eegggaggag 900 gccccctggc ccccgcccga aggggccttc gtgggcttcc tcctttcccg caaggagccc 960 atgtgggcgg agcttctggc cctggcggcg gcctcggagg gccgggtcca ccgggcaaca 1020 agcccggttg aggccctggc cgacctcaag gaggcccggg ggttcctggc caaggacctg 1080 gccgttttgg ccctgcggga gggggtggcc ctggacccca cggacgaccc cctcctggtg 1140 gectacetee tggaceegge caacaceeac eeegaggggg tggeeeggeg etaeggggge 1200 gagttcacgg aggacgcagc ggagagggcc ctcctctccg agaggctctt ccagaacctc 1260 tttaaacggc tttccgagaa gctcctctgg ctctaccagg aggtggagcg gccctctcc 1320 egggtettgg cccacatgga ggcccggggg gtgaggctgg acgtcccct tetggaggcc 1380 ctctcctttg agctggagaa ggagatggag cgcctggagg gggaggtctt ccgtttggcc 1440 ggccacccct tcaacctcaa ctcccgcgac cagctggaaa gggtcctctt tgacgagctg 1500

1560 ggcctcaccc cggtgggccg gacgcagaag acgggcaagc gctccaccgc ccagggggcc ctggaggccc tccggggggc ccaccccatc gtggagctca tcctccagta ccgggagctt 1620 tecaagetea aaageaeeta eetggaeeee etgeeeegge tegteeaeee geggaeggge 1680 eggetecaca ecegetteaa ecagaeggee aeggeeaegg gaaggettte eageteegae 1740 cccaacctgc agaacatccc cgtgcgcacc cccttggggc agcgcatccg caaggccttc 1800 gtggccgagg aggggtggct ccttttggcg gcggactact cccagattga gctccgggtc 1860 ctggcccacc tctcggggga cgagaacctg aagcgggtct tccgggaggg gaaggacatc 1920 cataccgaga ccgccgcctg gatgttcggc ttagaccccg ctctggtgga tccaaagatg 1980 cgccgggcgg ccaagacggt caacttcggc gtcctctacg ggatgtccgc ccacaggctc 2040 tcccaggagc tcggcataga ctacaaggag gcggaggcct ttattgagcg ctacttccag 2100 agcttcccca aggtgcgggc ctggatagaa aggaccctgg aggagggccg gacgcggggc 2160 2220 tacgtggaga cectgttegg caggaggege tatgtgeeeg acetggeete eegggteege teggtgeggg aggeggegga geggatggee tteaacatge eegtgeaggg caeegeegee 2280 gacctgatga agatcgccat ggtcaagctc ttccccaggc taaagcccct gggggcccac 2340 etectectee aagtgeacaa egagetggte etggaggtge eegaggaeeg ggeegaggag 2400 gccaaggccc tggtcaagga ggtcatggag aacgcctacc ccctggacgt gcccctcgag 2460 gtggaggtgg gcgtgggtcg ggactggctg gaggcgaagc aggattga 2508

<210> 131

<211> 2499

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 131

atggaattcc tgccctctt tgagcccaag ggccgggtgc ttctggtgga cggccaccac 60 ctggcctacc gtaccttttt tgccctgaag ggcctcacca ccagccgcgg ggagccggtc 120 caggcggtgt acgggttgc caagagcctt ttgaaggcgc taagggaaga cggggatgtg 180 gtgatcgtgg tgtttgacgc caaggcccc tccttccgcc accagaccta cgaggcctac 240 aaggcggggc gggctcccac ccccgaggac tttccccggc agcttgccct tatcaaggag 300 atggtggacc ttttgggcct ggagcgcctc gaggtgccgg gctttgaagc ggatgacgtc 360

420 ctggctaccc tggccaagaa ggcggaaaag gaaggctacg aagtgcgcat cctcaccgcg 480 gaccgggacc tttaccagct tctttcggag cgaatctcca tccttcaccc ggagggttac ctgatcaccc cggagtggct ttgggagaag tatgggctta agccttccca gtgggtggac 540 600 taccgggcct tggccgggga cccttccgac aacatccccg gcgtgaaggg catcggggag 660 aagacggcgg ccaagctgat ccgggagtgg ggaagcctgg aaaaccttct taagcacctg gaacaggtga aacctgcctc cgtgcgggag aagatcctta gccacatgga ggacctcaag 720 780 ctatccctgg agctatcccg ggtgcacacg gacttgctcc ttcaggtgga cttcgcccgg 840 cgccgggagc cggaccggga ggggcttaag gcctttttgg agaggctgga gttcggaagc ctcctccacg agttcggcct gttggaaagc ccggtggcgg cggaggaagc tccctggccg 900 cccccgagg gagccttcgt ggggtacgtt ctttcccgcc ccgagcccat gtgggcggag 960 ettaacgeet tggeegeege etgggaggga agggtttaee gggeggagga teeettggag 1020 1080 gccttgcggg ggcttgggga ggtgaggggg cttttggcca aggacctggc ggtgctggcc ctgagggaag ggattgccct ggcaccgggc gacgacccca tgctcctcgc ctacctcctg 1140 1200 gateetteea acacegeece egaaggggta geeeggeget aeggggggga gtggaeegag gaggcggggg aaagggcgct gctttccgaa aggctttacg ccgccctcct gaagcggctt 1260 aagggggagg agaggettet ttggetttae gaggaggtgg aaaageeeet ttegegggte 1320 ctggcccaca tggaggccac gggggtacgg ttggatgtgg cctacttaaa ggccctttcc 1380 ctggaggtgg aggcggagat aaggcgcttc gaggaggagg tccaccgcct ggccgggcat 1440 cettteaace tgaacteecg ggaccagetg gaaagggtea tetttgacga gettgggett 1500 cccgccatcg gcaagacgca gaagacgggc aagcgctcca ccagcgccgc cgttttggag 1560 gccttgcggg aggctcatcc catcgtggac cgcatccttc agtaccggga gctttccaag 1620 ctcaagggaa cctacatcga tcccttgcct gccctggtcc accccaagac gaaccgcctc 1680 cacaccegtt tcaaccagac ggccacegcc aeggggaggc ttagcagctc ggatectaat 1740 ctgcaaaata tccccgtgcg cacccctttg ggccagcgga tccgccgggc cttcgtggcc 1800 gaggagggt ggaggctggt ggttttggac tacagccaga ttgagctcag ggtcctggcg 1860 cacctttccg gggacgagaa cctaatccgg gtcttccagg agggccagga catccacacc 1920 cagacggcca gctggatgtt cggcgtgccc ccagaggccg tggattccct gatgcgccgg 1980 geggeeaaga ceateaactt eggegteete taeggeatgt eegeeeaceg gettteggga 2040 gagctggcca tcccctacga ggaggcggtg gccttcatcg agcggtattt ccagagctac 2100 cccaaggtgc gggcctggat tgagaaaacc ctggcggaag gacgggaacg gggctatgtg 2160 gaaaccctct ttggccgccg gcgctacgtg cccgacttgg cttcccgggt gaagagcatc 2220 cgggaggcag cggagcgcat ggccttcaac atgccggtcc aggggaccgc cgcggatttg 2280 atgaaactgg ccatggtgaa gctctttccc aggcttcagg agctgggggc caggatgctt 2340 ttgcaggtgc acaacgaact ggtcctcgag gctcccaagg agcaagcgga ggaagtcgcc 2400 caggaggcca agcggaccat ggaggaggtg tggcccttga aggtgccctt ggaggtggaa 2460 gtgggcatcg gggaggactg gctttccgcc aaggcctag 2499

<210> 132

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 132

atgaattcca ccccactttt tgacctggag gaacccccca agcgggtgct tctggtggac 60 ggccaccacc tggcctaccg caccttctat gccctgagcc tcaccacctc ccggggggag 120 ccggtgcaga tggtctacgg cttcgcccgg agcctcctca aggccttgaa ggaggacgga 180 caggeggtgg tegtggtett tgaegecaag geeceeteet teegecaega ggeetaegag 240 gcctacaagg cgggccgggc ccccaccccg gaggacttcc cccgccagct cgccttggtc 300 aageggetgg tggacettet gggeetggte egeetegagg eeceggggta egaggeggae 360 gacgtcctgg gcaccctggc caagaaggcc gaaagggagg ggatggaggt gcgcatcctc 420 acgggagacc gggacttett ceageteete teegagaagg teteggteet eetgeeggae 480 gggaccetgg teaccecaaa ggacgtecag gagaagtacg gggtgecece ggagegetgg 540 gtggacttcc gcgccctcac gggggaccgc tcggacaaca tccccggggt ggcggggata 600 ggggagaaga ccgcccttcg actcctcgca gagtggggga gcgtggaaaa cctcctgaag 660 aacctggacc gggtaaagcc ggactcgctc cggcgcaaga tagaggcgca cctcgaggac 720 etccacctct cettagacct ggcccgcatc cgcaccgacc tecccctgga ggtggacttt 780 aaggccctgc gccgcaggac ccccgacctg gagggcctga gggccttttt ggaggagctg 840 gagttcggaa gcctcctcca cgagttcggc ctcctgggag gggagaagcc ccgggaggag 900 gccccctggc ccccgcccga aggggccttc gtgggcttcc tcctttcccg caaggagccc 960 atgtgggcgg agettetgge eetggeggeg geetegggeg geegegtgea eegggeagea 1020 gacccettgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc 1080

gccgtcttgg	cctcgaggga	ggggctagac	ctcgtgcccg	gggacgaccc	catgctcctc	1140
gcctacctcc	tggacccttc	gaacaccacc	cccgaggggg	tggcgcggcg	ctacgggggg	1200
gagtggacgg	aggacgccgc	ccaccgggcc	ctcctctcgg	agaggctcca	tcggaacctc	1260
cttaagcgcc	tcgaggggga	ggagaagctc	ctttggctct	accacgaggt	ggaaaagccc	1320
ctctcccggg	tcctggccca	tatggaggcc	accggggtac	ggcgggacgt	ggcctacctt	1380,
caggcccttt	ccctggagct	tgcggaggag	atccgccgcc	tcgaggagga	ggtcttccgc	1440
ttggcgggcc	accccttcaa	cctcaactcc	cgggaccagc	tggaaagggt	gctctttgac	1500
gagcttaggc	ttcccgcctt	gaagaagacg	aagaagacag	gcaagcgctc	caccagcgcc	1560
gcggtgctgg	aggccctacg	ggaggcccac	cccatcgtgg	agaagatcct	ccagcaccgg	1620
gagctcacca	agctcaagaa	cacctacgtg	gaccccctcc	caagcctcgt	ccacccgagg	1680
acgggccgcc	tccacacccg	cttcaaccag	acggccacgg	ccacggggag	gcttagtagc	1740
tccgacccca	acctgcagaa	catccccgtc	cgcaccccct	tgggccagag	gatccgccgg	1800
gccttcgtgg	ccgaggcggg	ttgggcgttg	gtggccctgg	actatagcca	gatagagctc	1860
cgcgtcctcg	cccacctctc	cggggacgaa	aacctgatca	gggtcttcca	ggaggggaag	1920
gacatccaca	cccagaccgc	aagctggatg	ttcggcgtcc	ccccggaggc	cgtggacccc	1980
ctgatgcgcc	gggcggccaa	gacggtgaac	ttcggcgtcc	tctacggcat	gtccgcccat	2040
aggctctccc	aggagcttgc	catcccctac	gaggaggcgg	tggcctttat	agagcgctac	2100
ttccaaagct	tccccaaggt	gcgggcctgg	atagaaaaga	ccctggagga	ggggaggaag	2160
cggggctacg	tggaaaccct	cttcggaaga	aggcgctacg	tgcccgacct	caacgcccgg	2220
gtgaagagcg	tcagggaggc	cgcggagcgc	atggccttca	acatgcccgt	ccagggcacc	2280
gccgccgacc	tcatgaagct	cgccatggtg	aagctcttcc	cccgcctccg	ggagatgggg	2340
gcccgcatgc	tcctccaggt	cgccaacgag	ctcctcctgg	aggcccccca	agcgcgggcc	2400
gaggaggtgg	cggctttggc	caaggaggcc	atggagaagg	cctatcccct	cgccgtgccc	2460
ctggaggtgg	aggtggggat	gggggaggac	tggctttccg	ccaagggtca	ccaccaccac	2520
caccac						2526

<210> 133

<211> 2514

<212> DNA

<213> Artificial Sequence

<223> Synthetic

<400> atgaattccc tgcccctctt tgagcccaag ggccgggtgc ttctggtgga cggccaccac 60 120 ctggcctacc gtaccttttt tgccctgaag ggcctcacca ccagccgcgg ggagccggtc caggoggtgt acgggtttgc caagagcctt ttgaaggcgc taagggaaga cggggatgtg 180 gtgatcgtgg tgtttgacgc caaggccccc tccttccgcc accagaccta cgaggcctac 240 aaggegggge gggeteceae eecegaggae ttteeeegge agettgeeet tateaaggag 300 360 atggtggacc ttttgggcct ggagcgcctc gaggtgccgg gctttgaagc ggatgacgtc ctggctaccc tggccaagaa ggcggaaaag gaaggctacg aagtgcgcat cctcaccgcg 420 480 gaccgggacc tttaccagct tctttcggag cgaatctcca tccttcaccc ggagggttac ctgatcaccc cggagtggct ttgggagaag tatgggctta agccttccca gtgggtggac 540 600 taccgggcct tggccgggga cccttccgac aacatccccg gcgtgaaggg catcggggag aagacggcgg ccaagctgat ccgggagtgg ggaagcctgg aaaaccttct taagcacctg 660 gaacaggtga aacctgcctc cgtgcgggag aagatcctta gccacatgga ggacctcaag 720 780 ctatecetgg agetateceg ggtgeacaeg gaettgetee tteaggtgga ettegeeegg 840 cgccgggagc cggaccggga ggggcttaag gcctttttgg agaggctgga gttcggaagc ctcctccacg agttcggcct gttggaaagc ccggtggcgg cggaggaagc tccctggccg 900 960 cccccgagg gagccttcgt ggggtacgtt ctttcccgcc ccgagcccat gtgggcggag cttaacgcct tggccgccgc ctggggcggc cgcgtgcacc gggcagcaga ccccttggcg 1020 1080 gggctaaagg acctcaagga ggtccggggc ctcctcgcca aggacctcgc cgtcttggcc tegagggagg ggetagaeet egtgeeeggg gaegaeeeea tgeteetege etaeeteetg 1140 gaccettega acaccacce cgagggggtg gegeggeget aeggggggga gtggaeggag 1200 gacgccgccc accgggccct cctctcggag aggctccatc ggaacctcct taagcgcctc 1260 gagggggagg agaagctcct ttggctctac cacgaggtgg aaaagcccct ctcccgggtc 1320 ctggcccata tggaggccac cggggtacgg cgggacgtgg cctaccttca ggccctttcc 1380 ctggagcttg cggaggagat ccgccgcctc gaggaggagg tcttccgctt ggcgggccac 1440 cccttcaacc tcaactcccg ggaccagctg gaaagggtgc tctttgacga gcttaggctt 1500 cccgccttga agaagacgaa gaagacaggc aagcgctcca ccagcgccgc ggtgctggag 1560 gccctacggg aggcccaccc catcgtggag aagatcctcc agcaccggga gctcaccaag 1620 ctcaagaaca cctacgtgga ccccctccca agcctcgtcc acccgaggac gggccgcctc 1680 cacacceget teaaccagae ggccaeggee aeggggagge ttagtagete egaceceaae 1740 ctgcagaaca tccccgtccg caccccttg ggccagagga tccgccgggc cttcgtggcc 1800 gaggcgggtt gggcgttggt ggccctggac tatagccaga tagagctccg cgtcctcgcc 1860 cacctctccg gggacgaaaa cctgatcagg gtcttccagg aggggaagga catccacacc 1920 cagaccgcaa gctggatgtt cggcgtcccc ccggaggccg tggaccccct gatgcgccgg 1980 geggecaaga eggtgaactt eggegteete taeggeatgt eegeceatag geteteeeag 2040 gagettgeca teceetaega ggaggeggtg geetttatag agegetaett ecaaagette 2100 cccaaggtgc gggcctggat agaaaagacc ctggaggagg ggaggaagcg gggctacgtg 2160 gaaaccctct tcggaagaag gcgctacgtg cccgacctca acgcccgggt gaagagcgtc 2220 agggaggceg eggagegeat ggeetteaae atgeeegtee agggeaeege egeegaeete 2280 atgaageteg ceatggtgaa getetteece egeeteeggg agatggggge eegeatgete 2340 ctccaggtcg ccaacgagct cctcctggag gccccccaag cgcgggccga ggaggtggcg 2400 gctttggcca aggaggccat ggagaaggcc tatcccctcg ccgtgcccct ggaggtggag 2460 gtggggatgg gggaggactg gctttccgcc aagggtcacc accaccacca ccac 2514

<210> 134

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 134 atgaatteca ecceaetttt tgaeetggag gaaceeeca agegggtget tetggtggae 60 ggccaccacc tggcctaccg caccttctat gccctgagcc tcaccacctc ccggggggag 120 ccggtgcaga tggtctacgg cttcgcccgg agcctcctca aggccttgaa ggaggacgga 180 caggcggtgg tcgtggtctt tgacgccaag gccccctcct tccgccacga ggcctacgag 240 gcctacaagg cgggccgggc ccccaccccg gaggacttcc cccgccaget cgccttggtc 300 aagcggetgg tggacettet gggeetggte egeetegagg eeeeggggta egaggeggae 360 gacgtcctgg gcaccctggc caagaaggcc gaaagggagg ggatggaggt gcgcatcctc 420 acgggagacc gggacttett ccageteete teegagaagg teteggteet eetgeeggae 480 gggaccetgg teaceceaaa ggacgtecag gagaagtacg gggtgeeece ggagegetgg 540 gtggacttcc gcgccctcac gggggaccgc tcggacaaca tccccggggt ggcggggata 600 ggggagaaga ccgcccttcg actcctcgca gagtggggga gcgtggaaaa cctcctgaag 660

aacctggacc gggtaaagcc ggactcgctc cggcgcaaga tagaggcgca cctcgaggac 720 ctccacctct ccttagacct ggcccgcatc cgcaccgacc tccccctgga ggtggacttt 780 aaggccctgc gccgcaggac ccccgacctg gagggcctga gggccttttt ggaggagctg 840 gagttcggaa gcctcctcca cgagttcggc ctcctgggag gggagaagcc ccgggaggag 900 960 gccccctggc ccccgcccga aggggccttc gtgggcttcc tcctttcccg caaggagccc atgtgggegg agettetgge cetggeggeg geetegggeg geegegteea eegggeeece 1020 1080 gagccttata aagccctcag ggacctgaag gaggcgcggg ggcttctcgc caaagacctg agegttetgg ceetgaggga aggeettgge etceegeeeg gegacgaeec catgeteete 1140 gcctacctcc tggacccttc gaacaccacc cccgaggggg tggcccggcg ctacggcggg 1200 gagtggacgg aggaggcggg ggagcgggcc gccctttccg agaggctctt cgccaacctg 1260 cttaagaggc ttgaggggga ggagaggctc ctttggcttt accgggaggt ggagaggccc 1320 ctttccgctg tcctggccca tatggaggcc acgggggtgc gcctggacgt ggcctatctc 1380 agggcettgt ccctggaggt ggccgaggag atcgcccgcc tcgaggccga ggtcttccgc 1440 ctggccggcc accccttcaa cctcaactcc cgggaccagc tggaaagggt cctctttgac 1500 1560 gagetaggge tteeegeeat caagaagaeg caaaagaeeg geaagegete caeeagegee gccgtcctgg aggccctccg cgaggcccac cccatcgtgg agaagatcct gcagtaccgg 1620 gageteacea agetgaagag cacetacatt gacecettge eggaceteat eeaceceagg 1680 1740 acgggccgcc tccacacccg cttcaaccag acggccacgg ccacgggcag gctaagtagc 1800 teegateeca aceteeagaa cateeeegte egeaceeege ttgggeagag gateegeegg gccttcatcg ccgaggaggg gtggctattg gtggccctgg actatagcca gatagagctc 1860 agggtgctgg cccacctctc cggcgacgag aacctgatcc gggtcttcca ggaggggcgg 1920 gacatccaca eggagacege cagetggatg tteggegtee eeegggagge egtggaceee 1980 ctgatgcgcc gggcggccaa gaccatcaac ttcggggtcc tctacggcat gtcggcccac 2040 cgcctctccc aggagctagc catcccttac gaggaggccc aggccttcat tgagcgctac 2100 2160 tttcagagct tccccaaggt gcgggcctgg attgagaaga ccctggagga gggcaggagg 2220 cgggggtacg tggagaccct cttcggccgc cgccgctacg tgccagacct agaggcccgg gtgaagagcg tgcgggaggc ggccgagcgc atggccttca acatgcccgt ccagggcacc 2280 gccgccgacc tcatgaagct ggctatggtg aagctcttcc ccaggctgga ggaaatgggg 2340 gccaggatgc tccttcaggt cgccaacgag ctggtcctcg aggccccaaa agagagggcg 2400 gaggccgtgg cccggctggc caaggaggtc atggaggggg tgtatcccct ggccgtgccc 2460

2520

ctggaggtgg aggtggggat aggggaggac tggctctccg ccaaggagca ccaccaccac

caccac 2526

<210> 135

<211> 2514

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 135

60 atgaattccc tgcccctctt tgagcccaag ggccgggtgc ttctggtgga cggccaccac 120 ctggcctacc gtaccttttt tgccctgaag ggcctcacca ccagccgcgg ggagccggtc caggcggtgt acgggtttgc caagagcctt ttgaaggcgc taagggaaga cggggatgtg 180 gtgatcgtgg tgtttgacgc caaggccccc tccttccgcc accagaccta cgaggcctac 240 aaggegggge gggeteecae eeeegaggae ttteeeegge agettgeeet tateaaggag 300 atggtggacc ttttgggcct ggagcgcctc gaggtgccgg gctttgaagc ggatgacgtc 360 420 ctggctaccc tggccaagaa ggcggaaaag gaaggctacg aagtgcgcat cctcaccgcg gaccgggacc tttaccagct tctttcggag cgaatctcca tccttcaccc ggagggttac 480 540 ctgatcaccc cggagtggct ttgggagaag tatgggctta agccttccca gtgggtggac 600 taccgggcct tggccgggga cccttccgac aacatccccg gcgtgaaggg catcggggag aagacggcgg ccaagctgat ccgggagtgg ggaagcctgg aaaaccttct taagcacctg 660 720 gaacaggtga aacctgcctc cgtgcgggag aagatcctta gccacatgga ggacctcaag ctatccctgg agctatcccg ggtgcacacg gacttgctcc ttcaggtgga cttcgcccgg 780 cgccgggagc cggaccggga ggggcttaag gcctttttgg agaggctgga gttcggaagc 840 ctcctccacg agttcggcct gttggaaagc ccggtggcgg cggaggaagc tccctggccg 900 960 cccccgagg gagccttcgt ggggtacgtt ctttcccgcc ccgagcccat gtgggcggag ettaaegeet tggeegeege etggggegge egegteeace gggeeceega geettataaa 1020 gccctcaggg acctgaagga ggcgcggggg cttctcgcca aagacctgag cgttctggcc 1080 ctgagggaag gccttggcct cccgcccggc gacgacccca tgctcctcgc ctacctcctg 1140 gaccettega acaccacece egaggggtg geeeggeget aeggegggga gtggaeggag 1200 gaggegggg ageggeege cettteegag aggetetteg ceaacetget taagaggett 1260 gagggggagg agaggeteet ttggetttac egggaggtgg agaggeeeet tteegetgte 1320

ctggcccata tggaggccac gggggtgcgc ctggacgtgg cctatctcag gqccttgtcc 1380 ctggaggtgg ccgaggagat cgcccgcctc gaggccgagg tcttccgcct ggccggccac 1440 cccttcaacc tcaactcccg ggaccagctg gaaagggtcc tctttgacga gctagggctt 1500 cccgccatca agaagacgca aaagaccggc aagcgctcca ccagcgccgc cgtcctggag 1560 gccctccgcg aggcccaccc catcgtggag aagatcctgc agtaccggga gctcaccaag 1620 ctgaagagca cctacattga ccccttgccg gacctcatcc accccaggac gggccqcctc 1680 cacacceget teaaccagae ggeeaeggee aegggeagge taagtagete egateeeaae 1740 ctccagaaca tccccgtccg caccccgctt gggcagagga tccgccgggc cttcatcgcc 1800 gaggaggggt ggctattggt ggccctggac tatagccaga tagagctcag ggtgctggcc 1860 cacctetecg gegacgagaa cetgateegg gtettecagg aggggeggga catecacacg 1920 gagaccgcca gctggatgtt cggcgtcccc cgggaggccg tggaccccct gatgcgccgg 1980 gcggccaaga ccatcaactt cggggtcctc tacggcatgt cggcccaccg cctctcccag 2040 gagctagcca tecettaega ggaggeeeag geetteattg agegetaett teaqagette 2100 cccaaggtgc gggcctggat tgagaagacc ctggaggagg gcaggaggcg ggggtacgtg 2160 gagaccetet teggeegeeg cegetaegtg ceagacetag aggeeegggt gaagagegtg 2220 cgggaggcgg ccgagcgcat ggccttcaac atgcccgtcc agggcaccgc cgccgacctc 2280 atgaagetgg etatggtgaa getetteeee aggetggagg aaatggggge caggatgete 2340 cttcaggtcg ccaacgagct ggtcctcgag gccccaaaag agagggcgga ggccgtggcc 2400 cggctggcca aggaggtcat ggagggggtg tatcccctgg ccgtgcccct ggaggtggag 2460 gtggggatag gggaggactg geteteegee aaggageace accaecacea eeac 2514

<210> 136

<211> 320

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 136

Met Ala Ser Met Thr Gly Gly Gln Gln Met Gly Arg Ile Asn Ser Gly 1 5 10 15

Met Leu Pro Leu Phe Glu Pro Lys Gly Arq Val Leu Leu Val Asp Gly

20

His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys Gly Leu Thr Thr 35 40 45

30

Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys Ser Leu 50 60

Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile Val Val Phe Asp 65 70 75 80

Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly Gly Tyr Lys Ala 85 90 95

Gly Arg Ala Pro Thr Leu Val Pro Arg Gly Ser Glu Asp Phe Pro Arg
100 105 110

Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg 115 120 125

Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala 130 135 140

Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp 145 150 155 160

Lys Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro 165 170 175

Glu Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu 180 185 190

Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser 195 200 205

Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys 210 220

Leu Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp 225 230 235 240

Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp 245 250 255

Leu Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu 260 265 270

GIU V	275	FIIC	AIG	цуз	nrg	280	Giu	FTO	vsb	Arg	285	Arg	Беи	Arg	
	he Leu 90	Glu	Arg	Leu	Glu 295	Phe	Gly	Ser	Leu	Leu 300	His	Glu	Phe	Gly	
Leu Le 305	eu Glu	Ser	Pro	Lys 310	Ala	Ala	Leu	Glu	His 315	His	His	His	His	His 320	
<210>	137														
<211>	73														
<212>	DNA														
<213>	Arti	ficia	al Se	equei	nce										
<220>															
<223>	Synt	hetio	2												
<400> ccctat	137 tcttt	aaagt	tttt	ta aa	aaagt	ttga	a cco	ccctt	ttg	9999	gccct	tat d	cttta	aaagtt	60
tttaaa	aaatt	tga													73
<210>	138														
<211>	150														
<212>	DNA														
	Arti	ficia	al Se	eque	nce										
<220>															
<223>	Synt	hetio	2												
<400> cgcgcg	138 ggaac	gcgcg	3												15
<210>	139													•	
<211>	16														
<212>	DNA														
<213>	Arti	ficia	al Se	eque	nce										

<220>

<223>	Synthetic	
<400> cccggg	139 tttt cccggg	16
<210>	140	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> aggcgc	140 acca atttggtgtt	20
<210>	141	
<211>	53	
<212>	RNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> uucgcu	141 uucu ucccuuccuu ucucgccacg uucgccggcu uuccccguca agc	53
<210>	142	
<211>	30	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> acgggg	142 aaag ccggcgaacg tggcgagaaa	30
<210>	143	

<21	ГТ>	26	
<21	L2>	DNA	
<21	L3>	Artificial Sequence	
<22	20>		
<22	23> '	Synthetic	
		143 aagg aagggaagaa agcgaa	26
<21	L0>	144	
<21	L1>	30	
<21	L2>	DNA	
<21	L3>	Artificial Sequence	
<22	20>		
<22	23>	Synthetic	
<40 acg		144 aaag ccggcgaacg tggcgagaac	30
<21	LO>	145	
	.1>	•	
		DNA	
<21	.3>	Artificial Sequence	
<22			
	23>		
<40 ctt		145 gggg aaagccggcg aacgtggcgc	30
٥-	•		
<21		146	
<21		23	
<21	.2>	DNA	

<213> Artificial Sequence

<220>		
<223>	Synthetic	
<400> agaaag	146 gaag ggaagaaagc gaa	-23
<210>	147	
<211>	63	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gcgcgg	147 cggc gggtgtggtg gttacgcgca gcgtgaccgc tacacttgcc agcgccctag	60
cgc		63
<210>	148	
<211>	30	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gcgcta	148 gggc gctggcaagt gtagcggtca	30
<210>	149	
<211>	35	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gatcgc	149 tgcg cgtaaccacc acacccgcgc cgcgc	35

<210>	150	
<211>	30	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ggactc	150 tgcc tcaagacggt agtcaacgtg	30
<210>	151	
<211>	16	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	151 gact accgtc	16
J		
<210>	152	
<211>		
<212>		
<213>	Artificial Sequence	
<220>		
	Synthetic	
<400> catgtc	152 aagc agtcctaact ttgaggcaga gtcc	34
<210>	153	
<211>	2506	
<212>	DNA	
<213>	Thermus aquaticus	

<400> 153 atgaggggga tgctgccct ctttgagccc aagggccggg tcctcctggt ggacggccac 60 cacctggcct accgcacctt ccacgccctg aagggcctca ccaccagccg gggggagccg 120 gtgcaggcgg tctacggctt cgccaagagc ctcctcaagg ccctcaagga ggacggggac 180 geggtgateg tggtetttga egecaaggee eeeteettee gecaegagge etaegggggg 240 tacaaggegg geegggeeee caegeeggag gaettteeee ggeaactege ceteateaag 300 gagetggtgg acctectggg getggegege etegaggtee egggetaega ggeggaegae 360 gtcctggcca gcctggccaa gaaggcggaa aaggagggct acgaggtccg catcctcacc 420 gccgacaaag acctttacca gctcctttcc gaccgcatcc acgtcctcca ccccgagggg 480 tacctcatca ccccggcctg gctttgggaa aagtacggcc tgaggcccga ccagtgggcc 540 gactaccggg ccctgaccgg ggacgagtcc gacaaccttc ccggggtcaa gggcatcggg 600 gagaagacgg cgaggaagct tctggaggag tgggggagcc tggaagccct cctcaagaac 660 ctggaccggc tgaagcccgc catccgggag aagatcctgg cccacatgga cgatctgaag 720 ctctcctggg acctggccaa ggtgcgcacc gacctgcccc tggaggtgga cttcgccaaa 780 aggegggage cegaceggga gaggettagg geetttetgg agaggettga gtttggeage 840 ctcctccacg agttcggcct tctggaaagc cccaaggccc tggaggaggc cccctggccc 900 ccgccggaag gggccttcgt gggctttgtg ctttcccgca aggagcccat gtgggccgat 960 ettetggece tggeegeege cagggggge egggteeace gggeeceega geettataaa 1020 gccctcaggg acctgaagga ggcgcggggg cttctcgcca aagacctgag cgttctggcc 1080 etgagggaag geettggeet eeegeeegge gaegaeeeea tgeteetege etaceteetg 1140 gaccetteca acaccacce cgagggggtg geeeggeget acggeggga gtggaeggag 1200 gaggegggg agegggeege cettteegag aggetetteg ceaacetgtg ggggaggett 1260 gagggggagg agaggeteet ttggetttae egggaggtgg agaggeeeet tteegetgte 1320 ctggcccaca tggaggccac gggggtgcgc ctggacgtgg cctatctcag ggccttqtcc 1380 ctggaggtgg ccgaggagat cgcccgcctc gaggccgagg tcttccgcct ggccggccac 1440 ecetteaace teaacteeeg ggaccagetg gaaagggtee tetttgaega getagggett 1500 ecegecateg geaagaegga gaagaeegge aagegeteea eeagegeege egteetggag 1560 gccctccgcg aggcccaccc catcgtggag aagatcctgc agtaccggga gctcaccaag 1620 ctgaagagca cctacattga ccccttgccg gacctcatcc accccaggac gggccgcctc 1680 cacacceget teaaccagae ggecaeggee aegggeagge taagtagete egateecaae 1740 ctccagaaca tccccgtccg caccccgctt gggcagagga tccgccgggc cttcatcgcc 1800

gaggagggt ggctattggt ggccctggac tatagccaga tagagctcag ggtgctggcc 1860 cacctctccg gcgacgagaa cctgatccgg gtcttccagg aggggcggga catccacacg 1920 gagaccgcca gctggatgtt cggcgtcccc cgggaggccg tggaccccct gatgcgccgg 1980 2040 geggecaaga ccatcaactt eggggteete taeggeatgt eggeecaeeg eeteteeeag gagetageea teeettaega ggaggeecag geetteattg agegetaett teagagette 2100 cccaaggtgc gggcctggat tgagaagacc ctggaggagg gcaggaggcg ggggtacgtg 2160 gagaccetet teggeegeeg eegetaegtg ceagacetag aggeeegggt gaagagegtg 2220 cgggaggcgg ccgagcgcat ggccttcaac atgcccgtcc agggcaccgc cgccgacctc 2280 atgaagctgg ctatggtgaa gctcttcccc aggctggagg aaatgggggc caggatgctc 2340 cttcaggtcc acgacgagct ggtcctcgag gccccaaaag agagggcgga ggccgtggcc 2400 cggctggcca aggaggtcat ggagggggtg tatcccctgg ccgtgcccct ggaggtggag 2460 2506 gtggggatag gggaggactg gctctccgcc aaggagtgat accacc

<210> 154

<211> 2496

<212> DNA

<213> Thermus flavus

<400> 154 atggcgatgc ttcccctctt tgagcccaaa ggccgcgtgc tcctggtgga cggccaccac 60 ctggcctacc gcaccttctt tgccctcaag ggcctcacca ccagccgcgg cgaacccgtt 120 caggoggtct acggcttcgc caaaagcctc ctcaaggccc tgaaggagga cggggacgtg 180 gtggtggtgg tetttgaege caaggeeece teetteegee acgaggeeta egaggeetae 240 aaggcgggcc gggcccccac cccggaggac tttccccggc agctggccct catcaaggag 300 ttggtggacc tcctaggcct tgtgcggctg gaggttcccg gctttgaggc ggacgacgtg 360 ctggccaccc tggccaagcg ggcggaaaag gaggggtacg aggtgcgcat cctcactgcc 420 gaccgcgacc tctaccagct cctttcggag cgcatcgcca tcctccaccc tgaggggtac 480 ctgatcaccc cggcgtggct ttacgagaag tacggcctgc gcccggagca gtgggtggac 540 taccgggccc tggcggggga cccctcggat aacatccccg gggtgaaggg catcggggag 600 aagaccgccc agaggeteat eegegagtgg gggageetgg aaaacetett eeageaeetg 660 gaccaggtga agccctcctt gcgggagaag ctccaggcgg gcatggaggc cctggccctt 720 teceggaage ttteceaggt geacactgae etgeeeetgg aggtggaett egggaggege 780

cgcacaccca	acctggaggg	tctgcgggct	tttttggagc	ggttggagtt	tggaagcctc	840
ctccacgagt	teggeeteet	ggaggggccg	aaggcggcag	aggaggcccc	ctggccccct	900
ccggaagggg	cttttttggg	cttttccttt	tcccgtcccg	agcccatgtg	ggccgagctt	960
ctggccctgg	ctggggcgtg	ggagggggg	ctccatcggg	cacaagaccc	ccttaggggc	1020
ctgagggacc	ttaagggggt	gcggggaatc	ctggccaagg	acctggcggt	tttggccctg	1080
cgggagggcc	tggacctctt	cccagaggac	gaccccatgc	tcctggccta	ccttctggac	1140
ccctccaaca	ccacccctga	gggggtggcc	cggcgttacg	ggggggagtg	gacggaggat	1200
gcgggggaga	gggccctcct	ggccgagcgc	ctcttccaga	ccctaaagga	gcgccttaag	1260
ggagaagaac	gcctgctttg	gctttacgag	gaggtggaga	agccgctttc	ccgggtgttg	1320
gcccggatgg	aggccacggg	ggtccggctg	gacgtggcct	acctccaggc	cctctccctg	1380
gaggtggagg	cggaggtgcg	ccagctggag	gaggaggtct	tccgcctggc	cggccacccc	1440
ttcaacctca	actcccgcga	ccagctggag	cgggtgctct	ttgacgagct	gggcctgcct	1500
gccatcggca	agacggagaa	gacggggaaa	cgctccacca	gcgctgccgt	gctggaggcc	1560
ctgcgagagg	cccaccccat	cgtggaccgc	atcctgcagt	accgggagct	caccaagctc	1620
aägaacacct	acatagaccc	cctgcccgcc	ctggtccacc	ccaagaccgg	ccggctccac	1680
acccgcttca	accagacggc	caccgccacg	ggcaggcttt	ccagctccga	ccccaacctg	1740
cagaacatcc	ccgtgcgcac	ccctctgggc	cagcgcatcc	gccgagcctt	cgtggccgag	1800
gagggctggg	tgctggtggt	cttggactac	agccagattg	agcttcgggt	cctggcccac	1860
ctctccgggg	acgagaacct	gatccgggtc	tttcaggagg	ggagggacat	ccacacccag	1920
accgccagct	ggatgttcgg	cgtttccccc	gaaggggtag	accctctgat	gcgccgggcg	1980
gccaagacca	tcaacttcgg	ggtgctctac	ggcatgtccg	cccaccgcct	ctccggggag	2040
ctttccatcc	cctacgagga	ggcggtggcc	ttcattgagc	gctacttcca	gagctacccc	2100
aaggtgcggg	cctggattga	ggggaccctc	gaggagggcc	gccggcgggg	gtatgtggag	2160
accctcttcg	gccgccggcg	ctatgtgccc	gacctcaacg	cccgggtgaa	gagcgtgcgc	2220
gaggcggcgg	agcgcatggc	cttcaacatg	ccggtccagg	gcaccgccgc	cgacctcatg	2280
aagctggcca	tggtgcggct	tttcccccgg	cttcaggaac	tgggggcgag	gatgcttttg	2340
caggtgcacg	acgagctggt	cctcgaggcc	cccaaggacc	gggcggagag	ggtagccgct	2400
ttggccaagg	aggtcatgga	gggggtctgg	cccctgcagg	tgcccctgga	ggtggaggtg	2460
ggcctggggg	aggactggct	ctccgccaag	gagtag			2496

<210> 155

<211> 2505

<213> Thermus thermophilus

<400> 155 atggaggcga	tgcttccgct	ctttgaaccc	aaaggccggg	tcctcctggt	ggacggccac	60
cacctggcct	accgcacctt	cttcgccctg	aagggcctca	ccacgagccg	gggcgaaccg	120
gtgcaggcgg	tctacggctt	cgccaagagc	ctcctcaagg	ccctgaagga	ggacgggtac	180
aaggccgtct	tcgtggtctt	tgacgccaag	gcccctcct	tccgccacga	ggcctacgag	240
gcctacaagg	cggggagggc	cccgaccccc	gaggacttcc	cccggcagct	cgccctcatc	300
aaggagctgg	tggacctcct	ggggtttacc	cgcctcgagg	tccccggcta	cgaggcggac	360
gacgttctcg	ccaccctggc	caagaaggcg	gaaaaggagg	ggtacgaggt	gcgcatcctc	420
accgccgacc	gcgacctcta	ccaactcgtc	tccgaccgcg	tcgccgtcct	ccaccccgag	480
ggccacctca	tcaccccgga	gtggctttgg	gagaagtacg	gcctcaggcc	ggagcagtgg	540
gtggacttcc	gcgccctcgt	gggggacccc	tccgacaacc	tccccggggt	caagggcatc	600
ggggagaaga	ccgccctcaa	gctcctcaag	gagtggggaa	gcctggaaaa	cctcctcaag	660
aacctggacc	gggtaaagcc	agaaaacgtc	cgggagaaga	tcaaggccca	cctggaagac	720
ctcaggctct	ccttggagct	ctcccgggtg	cgcaccgacc	tccccctgga	ggtggacctc	780
gcccaggggc	gggagcccga	ccgggagggg	cttagggcct	tcctggagag	gctggagttc	840
ggcagcctcc	tccacgagtt	cggcctcctg	gaggcccccg	ccccctgga	ggaggccccc	900
tggcccccgc	cggaaggggc	cttcgtgggc	ttcgtcctct	cccgccccga	gcccatgtgg	960
gcggagctta	aagccctggc	cgcctgcagg	gacggccggg	tgcaccgggc	agcagacccc	1020
ttggcggggc	taaaggacct	caaggaggtc	cggggcctcc	tcgccaagga	cctcgccgtc	1080
ttggcctcga	gggaggggct	agacctcgtg	cccggggacg	accccatgct	cctcgcctac	1140
ctcctggacc	cctccaacac	cacccccgag	ggggtggcgc	ggcgctacgg	gggggagtgg	1200
acggaggacg	ccgcccaccg	ggccctcctc	tcggagaggc	tccatcggaa	cctccttaag	1260
cgcctcgagg	gggaggagaa	gctcctttgg	ctctaccacg	aggtggaaaa	gcccctctcc	1320
cgggtcctgg	cccacatgga	ggccaccggg	gtacggctgg	acgtggccta	ccttcaggcc	1380
ctttccctgg	agcttgcgga	ggagatccgc	cgcctcgagg	aggaggtctt	ccgcttggcg	1440
ggccacccct	tcaacctcaa	ctcccgggac	cagctggaaa	gggtgctctt	tgacgagctt	1500
aggcttcccg	ccttggggaa	gacgcaaaag	acaggcaagc	gctccaccag	cgccgcggtg	1560
ctggaggccc	tacgggaggc	ccaccccatc	gtggagaaga	tcctccagca	ccgggagctc	1620
accaagctca	agaacaccta	cgtggacccc	ctcccaagcc	tcgtccaccc	gaggacgggc	1680

1740 cgcctccaca cccgcttcaa ccagacggcc acggccacgg ggaggcttag tagctccgac cccaacctgc agaacatccc cgtccgcacc cccttgggcc agaggatccg ccgggccttc 1800 gtggccgagg cgggttgggc gttggtggcc ctggactata gccagataga gctccqcgtc 1860 ctcgcccacc tctccgggga cgaaaacctg atcagggtct tccaggaggg gaaggacatc 1920 cacacccaga ccgcaagctg gatgttcggc gtccccccgg aggccgtgga ccccctgatg 1980 cgccgggcgg ccaagacggt gaacttcggc gtcctctacg gcatgtccgc ccataggctc 2040 tcccaggage ttgccatccc ctacgaggag geggtggcct ttatagageg ctacttccaa 2100 agetteecea aggtgeggge etggatagaa aagaceetgg aggaggggag gaagegggge 2160 tacgtggaaa ccctcttcgg aagaaggcgc tacgtgcccg acctcaacgc ccgggtgaag 2220 agegteaggg aggeegegga gegeatggee tteaacatge eegteeaggg cacegeegee 2280 gacctcatga agctcgccat ggtgaagctc ttcccccgcc tccgggagat gggggcccgc 2340 atgeteetee aggteeaega egageteete etggaggeee eecaagegeg ggeegaggag 2400 gtggcggctt tggccaagga ggccatggag aaggcctatc ccctcgccgt gcccctggag 2460 gtggaggtgg ggatgggga ggactggctt tccgccaagg gttag 2505 <210> 156 <211> 2502

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<220>

<221> misc feature

<222> (4)..(5)

<223> n is any of the bases g, a, t, or c.

<220>

<221> misc feature

<222> (181)..(182)

<223> n is any of the bases g, a, t, or c.

```
<220>
<221> misc_feature
<222> (190)..(190)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (366)..(366)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (617)..(617)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (628)..(628)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (685)..(685)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc feature
<222> (714)..(714)
<223> n is any of the bases g, a, t, or c.
```

<220>

```
<221> misc_feature
<222> (722)..(722)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (738)..(738)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (784)..(784)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1022)..(1022)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1029)..(1029)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1038)..(1038)
<223> n is any of the bases g, a, t, or c.
<220>
```

<221> misc_feature

```
<222> (1053)..(1053)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1098)..(1098)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1105)..(1105)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1206)..(1206)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1227)..(1227)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1244)..(1244)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1251)..(1253)
```

```
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1350)..(1350)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1380)..(1380)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1497)..(1497)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1530)..(1530)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1569)..(1569)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1572)..(1572)
```

<223> n is any of the bases g, a, t, or c.

```
<220>
<221> misc_feature
<222> (1641)..(1641)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1653)..(1653)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1655)..(1655)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1770)..(1770)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (1812)..(1812)
<223> n is any of the bases g, a, t, or c.
<220>
<221> misc_feature
<222> (2319)..(2319)
<223> n is any of the bases g, a, t, or c.
```

<220>

```
<221> misc feature
<222>
       (2346)..(2346)
<223> n is any of the bases g, a, t, or c.
<220>
<221>
       misc feature
<222>
       (2396) . . (2396)
<223>
<220>
<221>
      misc_feature
<222>
      (2396) . . (2396)
<223> n is any of the bases g, a, t, or c.
```

<400> 156 atgnnggega tgcttcccct ctttgagccc aaaggccggg tcctcctggt ggacggccac 60 cacctggcct accgcacctt cttcgccctg aagggcctca ccaccagccg gggcgaaccg 120 180 gtgcaggcgg tctacggctt cgccaagagc ctcctcaagg ccctgaagga ggacggggac 240 nnggeggtgn tegtggtett tgaegeeaag geeeceteet teegeeaega ggeetaegag gcctacaagg cgggccgggc ccccacccg gaggactttc cccggcagct cgccctcatc 300 360 aaggagetgg tggaceteet ggggettgeg egeetegagg teeceggeta egaggeggae gacgtnetgg ceaccetgge caagaaggeg gaaaaggagg ggtacgaggt gegeateete 420 accgccgacc gcgacctcta ccagctcctt tccgaccgca tcgccgtcct ccaccccgag 480 gggtacetea teaceeegge gtggetttgg gagaagtaeg geetgaggee ggageagtgg 540 gtggactacc gggccctggc gggggacccc tccgacaacc tccccggggt caagggcatc 600 ggggagaaga ccgcccngaa gctcctcnag gagtggggga gcctggaaaa cctcctcaag 660 aacctggacc gggtgaagcc cgccntccgg gagaagatcc aggcccacat ggangacctg 720 780 angeteteet gggagetnte ecaggtgege acegacetge ecetggaggt ggaettegee aagnggeggg agceegaceg ggaggggett agggeettte tggagagget ggagtttgge 840 agectectee acgagttegg ceteetggag ggeeceaagg ceetggagga ggeeceetgg 900 960 cccccgccgg aaggggcctt cgtgggcttt gtcctttccc gccccgagcc catgtgggcc gagettetgg ceetggeege egecagggag ggeegggtee acegggeace agacecettt 1020

angggcetna gggacetnaa ggaggtgegg ggneteeteg ecaaggacet ggeegttttg 1080 1140 gccctgaggg agggcctnga cctcntgccc ggggacgacc ccatgctcct cgcctacctc ctggacccct ccaacaccac ccccgagggg gtggcccggc gctacggggg ggagtggacg 1200 1260 gaggangegg gggageggge ceteetntee gagaggetet teengaacet nnngeagege cttgaggggg aggagaggct cctttggctt taccaggagg tggagaagcc cctttcccgg 1320 gtcctggccc acatggaggc cacgggggtn cggctggacg tggcctacct ccaggccctn 1380 tecetggagg tggeggagga gateegeege etegaggagg aggtetteeg eetggeegge 1440 1500 caccccttca acctcaactc ccgggaccag ctggaaaggg tgctctttga cgagctnggg 1560 ettecegeca teggeaagae ggagaagaen ggeaageget eeaceagege egeegtgetg gaggccctnc gngaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aageteaaga acacetacat ngaceceetg cengneeteg tecaceceag gaegggeege 1680 1740 ctccacaccc gcttcaacca gacggccacg gccacgggca ggcttagtag ctccgacccc aacctgcaga acatccccgt ccgcaccccn ctgggccaga ggatccgccg ggccttcgtg 1800 gccgaggagg gntgggtgtt ggtggccctg gactatagcc agatagagct ccgggtcctg 1860 gcccacctct ccggggacga gaacctgatc cgggtcttcc aggaggggag ggacatccac 1920 acccagaceg ccagetggat gtteggegte ceeeeggagg cegtggacee cetgatgege 1980 egggeggeca agaceateaa etteggggte etetaeggea tgteegeeca eegeetetee 2040 caggagettg ceateceeta egaggaggeg gtggeettea ttgagegeta ettecagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg ceggegetae gtgeeegaee teaacgeeeg ggtgaagage 2220 gtgcgggagg cggcggagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggccatggt gaagctcttc ccccggctnc aggaaatggg ggccaggatg 2340 ctcctncagg tccacgacga gctggtcctc gaggccccca aagagcgggc ggaggnggtg 2400 gccgctttgg ccaaggaggt catggagggg gtctatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga tggggggggg ctggctctcc gccaaggagt ag 2502

<210> 157

<211> 832

<212> PRT

<213> Thermus aquaticus

Met Arg Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu 1 5 10 15

Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys Gly 20 25 30

Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala 35 40 45

Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile Val 50 60

Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly Gly 65 70 75 80

Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu 85 90 95

Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu Glu
100 105 110

Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys Lys 115 120 125

Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp 130 140

Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly 145 150 155 160

Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg Pro 165 170 175

Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp Asn 180 185 190

Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu Leu 195 200 205

Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg Leu 210 220 \cdot

Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu Lys 225 230 235 240

Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu Val 245 250

Asp	PHE	AIA	260	Arg	AIG	GIU	PIO	265	Arg	GIU	Arg	Leu	270	АТА	Pne
Leu	Glu	Arg 275	Leu	Glu	Phe	Gly	Ser 280	Leu	Leu	His	Glu	Phe 285	Gly	Leu	Leu
Glu	Ser 290	Pro	Lys	Ala	Leu	Glu 295	Glu	Ala	Pro	Trp	Pro 300	Pro	Pro	Glu	Gly
Ala 305	Phe	Val	Gly	Phe	Val 310	Leu	Ser	Arg	Lys	Glu 315	Pro	Met	Trp	Ala	Asp 320
Leu	Leu	Ala	Leu	Ala 325	Ala	Ala	Arg	Gly	Gly 330	Arg	Val	His	Arg	Ala 335	Pro
Glu	Pro	Tyr	Lys 340	Ala	Leu	Arg	Asp	Leu 345	Lys	Glu	Ala	Arg	Gly 350	Leu	Leu
Ala	Lys	Asp 355	Leu	Ser	Val	Leu	Ala 360	Leu	Arg	Glu	Gly	Leu 365	Gly	Leu	Pro
Pro	Gly 370	Asp	Asp	Pro	Met	Leu 375	Leu	Ala	Tyr	Leu	Leu 380	Asp	Pro	Ser	Asn
Thr 385	Thr	Pro	Glu	Gly	Val 390	Ala	Arg	Arg	Tyr	Gly 395	Gly	Glu	Trp	Thr	Glu 400
Glu	Ala	Gly	Glu	Arg 405	Ala	Ala	Leu	Ser	Glu 410	Arg	Leu	Phe	Ala	Asn 415	Leu
Trp	Gly	Arg	Leu 420	Glu	Gly	Glu	Glu	Arg 425	Leu	Leu	Trp	Leu	Tyr 430	Arg	Glu
Val	Glu	Arg 435	Pro	Leu	Ser	Ala	Val 440	Leu	Ala	His	Met	Glu 445	Ala	Thr	Gly
Val	Arg 450	Leu	Asp	Val	Ala	Tyr 455	Leu	Arg	Ala	Leu	Ser 460	Leu	Glu	Val	Ala
Glu 465	Glu	Ile	Ala	Arg	Leu 470	Glu	Ala	Glu	Val	Phe 475	Arg	Leu	Ala	Gly	His 480
Pro	Phe	Asn	Leu	Asn 485	Ser	Arg	Asp	Gln	Leu 490	Glu	Arg	Val	Leu	Phe 495	Asp

Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys Arg

- Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile 515 520 525
- Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser Thr 530 540
- Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg Leu 545 550 555 560
- His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser 565 570 575
- Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln 580 585 590
- Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val Ala 595 600 605
- Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly 610 620
- Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His Thr 625 630 635 640
- Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp Pro 645 650 655
- Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly
 660 665 670
- Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu 675 680 685
- Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg 690 695 700
- Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr Val 705 710 715 720
- Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Glu Ala Arg 725 730 735
- Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro 740 745 750

Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu 755 760 765

Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val His
770 780

Asp Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val Ala 785 790 795 800

Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val Pro 805 810 815

Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys Glu 820 825 830

<210> 158

<211> 831

<212> PRT

<213> Thermus flavus

<400> 158

Met Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Val Val Val Val 50 55 60

Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Val Arg Leu Glu Val
100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Arg Ala 115 120 125

	130	GIU	GIŸ	ıyr	GIU	135	Arg	iie	Leu	inr	140	Asp	Arg	Asp	ьeu
Tyr 145	Gln	Leu	Leu	Ser	Glu 150	Arg	Ile	Ala	Ile	Leu 155	His	Pro	Glu	Gly	Tyr 160
Leu	Ile	Thr	Pro	Ala 165	Trp	Leu	Tyr	Glu	Lys 170	Tyr	Gly	Leu	Arg	Pro 175	Glu
Gln	Trp	Val	Asp 180	Tyr	Arg	Ala	Leu	Ala 185	Gly	Asp	Pro	Ser	Asp 190	Asn	Ile
Pro	Gly	Val 195	Lys	Gly	Ile	Gly	Glu 200	Lys	Thr	Ala	Gln	Arg 205	Leu	Ile	Arg
Glu	Trp 210	Gly	Ser	Leu	Glu	Asn 215	Leu	Phe	Gln	His	Leu 220	Asp	Gln	Val	Lys
Pro 225	Ser	Leu	Arg	Glu	Lys 230	Leu	Gln	Ala	Gly	Met 235	Glu	Ala	Leu	Ala	Leu 240
Ser	Arg	Lys	Leu	Ser 245	Gln	Val	His	Thr	Asp 250	Leu	Pro	Leu	Glu	Val 255	Asp
Phe	Gly	Arg	Arg 260	Arg	Thr	Pro	Asn	Leu 265	Glu	Gly	Leu	Arg	Ala 270	Phe	Leu
Glu	Arg	Leu 275	Glu	Phe	Gly	Ser	Leu 280	Leu	His	Glu	Phe	Gly 285	Leu	Leu	Glu
Gly	Pro 290	Lys	Ala	Ala	Glu	Glu 295	Ala	Pro	Trp	Pro	Pro 300	Pro	Glu	Gly	Ala
Phe 305	Leu	Gly	Phe	Ser	Phe 310	Ser	Arg	Pro	Glu	Pro 315	Met	Trp	Ala	Glu	Leu 320
Leu	Ala	Leu	Ala	Gly 325	Ala	Trp	Glu	Gly	Arg 330	Leu	His	Arg	Ala	Gln 335	Asp
Pro	Leu	Arg	Gly 340	Leu	Arg	Asp	Leu	Lys 345	Gly	Val	Arg	Gly	Ile 350	Leu	Ala
Lys	Asp	Leu 355	Ala	Val	Leu	Ala	Leu 360	Arg	Glu	Gly	Leu	Asp 365	Leu	Phe	Pro
Glu	Asp	Asp	Pro	Met	Leu	Leu	Ala	Tyr	Leu	Leu	Asp	Pro	Ser	Asn	Thr

Thr 385	Pro	Glu	Gly	Val	Ala 390	Arg	Arg	Tyr	Gly	Gly 395	Glu	Trp	Thr	Glu	Asp 400
Ala	Gly	Glu	Arg	Ala 405	Leu	Leu	Ala	Glu	Arg 410	Leu	Phe	Gln	Thr	Leu 415	Lys
Glu	Arg	Leu	Lys 420	Gly	Glu	Glu	Arg	Leu 425	Leu	Trp	Leu	Tyr	Glu 430	Glu	Val
Glu	Lys	Pro 435	Leu	Ser	Arg	Val	Leu 440	Ala	Arg	Met	Glu	Ala 445	Thr	Gly	Val
Arg	Leu 450	Asp	Val	Ala	Tyr	Leu 455	Gln	Ala	Leu	Ser	Leu 460	Glu	Val	Glu	Ala
Glu 465	Val	Arg	Gln	Leu	Glu 470	Glu	Glu	Val	Phe	Arg 475	Leu	Ala	Gly	His	Pro 480
Phe	Asn	Leu	Asn	Ser 485	Arg	Asp	Gln	Leu	Glu 490	Arg	Val	Leu	Phe	Asp 495	Glu
Leu	Gly	Leu	Pro 500	Ala	Ile	Gly	Lys	Thr 505	Glu	Lys	Thr	Gly	Lys 510	Arg	Ser
Thr	Ser	Ala 515	Ala	Val	Leu	Glu	Ala 520	Leu	Arg	Glu	Ala	His 525	Pro	Ile	Val
Asp	Arg 530	Ile	Leu	Gln	Tyr	Arg 535	Glu	Leu	Thr	Lys	Leu 540	Lys	Asn	Thr	Tyr
Ile 545	Asp	Pro	Leu	Pro	Ala 550	Leu	Val	His	Pro	Lys 555	Thr	Gly	Arg	Leu	His 560
Thr	Arg	Phe	Asn	Gln 565	Thr	Ala	Thr	Ala	Thr 570	Gly	Arg	Leu	Ser	Ser 575	Ser
Asp	Pro	Asn	Leu 580	Gln	Asn	Ile	Pro	Val 585	Arg	Thr	Pro	Leu	Gly 590	Gln	Arg
Ile	Arg	Arg 595	Ala	Phe	Val	Ala	Glu 600	Glu	Gly	Trp	Val	Leu 605	Val	Val	Leu
Asp	Tyr 610	Ser	Gln	Ile	Glu	Leu 615	Arg	Val	Leu	Ala	His 620	Leu	Ser	Gly	Asp

625 630 635 Thr Ala Ser Trp Met Phe Gly Val Ser Pro Glu Gly Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gly Glu Leu Ser Ile Pro Tyr Glu Glu Ala 675 680 Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Tyr Pro Lys Val Arg Ala Trp Ile Glu Gly Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr Val Glu 705 710 715 Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Arg Leu Phe Pro Arg Leu Gln Glu Leu Gly Ala Arg Met Leu Leu Gln Val His Asp Glu Leu Val Leu Glu Ala Pro Lys Asp Arg Ala Glu Arg Val Ala Ala 785 Leu Ala Lys Glu Val Met Glu Gly Val Trp Pro Leu Gln Val Pro Leu Glu Val Glu Val Gly Leu Gly Glu Asp Trp Leu Ser Ala Lys Glu <210> 159

Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His Thr Gln

<211> 833

<212> PRT

<213> Artificial Sequence

- <220>
- <223> Synthetic
- <220>
- <221> MISC_FEATURE
- <222> (2)..(2)
- <223> X is any amino acid.
- <220>
- <221> MISC_FEATURE
- <222> (63)..(63)
- <223> X is any amino acid.
- <220>
- <221> MISC_FEATURE
- <222> (109)..(109)
- <223> X is any amino acid.
- <220>
- <221> MISC_FEATURE
- <222> (186)..(186)
- <223> X is any amino acid.
- <220>
- <221> MISC_FEATURE
- <222> (205)..(205)
- <223> X is any amino acid.
- <220>
- <221> MISC_FEATURE
- <222> (209)..(209)
- <223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (227)..(228)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (233)..(233)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (240)..(240)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (243)..(244)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (247)..(247)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (260)..(260)

<223> X is any amino acid.

<220>

```
<221> MISC_FEATURE
```

<222> (290)..(290)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (329)..(329)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (336)..(336)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (340)..(340)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (368)..(368)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (414)..(414)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

- <222> (417)..(418)
- <223> X is any amino acid.
- <220>
- <221> MISC_FEATURE
- <222> (431)..(431)
- <223> X is any amino acid.
- <220>
- <221> MISC_FEATURE
- <222> (551)..(551)
- <223> X is any amino acid.
- <220>
- <221> MISC_FEATURE
- <222> (605)..(605)
- <223> X is any amino acid.
- <220>
- <221> MISC_FEATURE
- <222> (773)..(773)
- <223> X is any amino acid.
- <220>
- <221> MISC_FEATURE
- <222> (794)..(794)
- <223> X is any amino acid.
- <220>
- <221> MISC_FEATURE
- <222> (798)..(798)

<223> X is any amino acid.

<220>

<221> MISC_FEATURE

<222> (823)..(823)

<223> X is any amino acid.

<220>

<221> MISC FEATURE

<222> (833)..(833)

<223> X is any amino acid.

<400> 159

Met Xaa Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu 1 5 10 15

Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly 20 25 30

Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala 35 40 45

Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Xaa Val 50 60

Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu Ala 65 70 75 80

Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu 85 90 95

Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Xaa Arg Leu Glu
100 105 110

Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys 115 120 125

Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp 130 135 140

145	Tyr	GIn	Leu	Leu	Ser 150	Asp	Arg	Ile	Ala	Val 155	Leu	His	Pro	GIu	160
Tyr	Leu	Ile	Thr	Pro 165	Ala	Trp	Leu	Trp	Glu 170	Lys	Tyr	Gly	Leu	Arg 175	Pro
Glu	Gln	Trp	Val 180	Asp	Tyr	Arg	Ala	Leu 185	Xaa	Gly	Asp	Pro	Ser 190	Asp	Asn
Leu	Pro	Gly 195	Val	Lys	Gly	Ile	Gly 200	Glu	Lys	Thr	Ala	Xaa 205	Lys	Leu	Leu
Xaa	Glu 210	Trp	Gly	Ser	Leu	Glu 215	Asn	Leu	Leu	Lys	Asn 220	Leu	Asp	Arg	Val
Lys 225	Pro	Xaa	Xaa	Arg	Glu 230	Lys	Ile	Xaa	Ala	His 235	Met	Glu	Asp	Leu	Xaa 240
Leu	Ser	Xaa	Xaa	Leu 245	Ser	Xaa	Val	Arg	Thr 250	Asp	Leu	Pro	Leu	Glu 255	Val
Asp	Phe	Ala	Xaa 260	Arg	Arg	Glu	Pro	Asp 265	Arg	Glu	Gly	Leu	Arg 270	Ala	Phe
Leu	Glu	Arg 275	Leu	Glu	Phe	Gly	Ser 280	Leu	Leu	His	Glu	Phe 285	Gly	Leu	Leu
Glu	Xaa 290	Pro	Lys	Ala	Leu	Glu 295	Glu	Ala	Pro	Trp	Pro 300	Pro	Pro	Glu	Gly
Ala 305	Phe	Val	Gly	Phe	Val 310	Leu	Ser	Arg	Pro	Glu 315	Pro	Met	Trp	Ala	Glu 320
Leu	Leu	Ala	Leu	Ala 325	Ala	Ala	Arg	Xaa	Gly 330	Arg	Val	His	Arg	Ala 335	Xaa
Asp	Pro	Leu	Xaa 340	Gly	Leu	Arg	Asp	Leu 345	Lys	Glu	Val	Arg	Gly 350	Leu	Leu ·
Ala	Lys	Asp 355	Leu	Ala	Val	Leu	Ala 360	Leu	Arg	Glu	Gly	Leu 365	Asp	Leu	Xaa
Pro	Gly 370	Asp	Asp	Pro	Met	Leu 375	Leu	Ala	Tyr	Leu	Leu 380	Asp	Pro	Ser	Asn
Thr 385	Thr	Pro	Glu	Gly	Val 390	Ala	Arg	Arg	Tyr	Gly 395	Gly	Glu	Trp	Thr	Glu 400

- Asp Ala Gly Glu Arg Ala Leu Leu Ser Glu Arg Leu Phe Xaa Asn Leu 405 410 415
- Xaa Xaa Arg Leu Glu Glu Glu Glu Arg Leu Leu Trp Leu Tyr Xaa Glu 420 425 430
- Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly 435 440 445
- Val Arg Leu Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Val Ala 450 455 460
- Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg Leu Ala Gly His 465 470 475 480
- Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp 485 490 495
- Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys Arg 500 505 510
- Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile 515 520 525
- Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Asn Thr 530 540
- Tyr Ile Asp Pro Leu Pro Xaa Leu Val His Pro Arg Thr Gly Arg Leu 545 550 555 560
- His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser 565 570 575
- Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln 580 585 590
- Arg Ile Arg Arg Ala Phe Val Ala Glu Glu Gly Trp Xaa Leu Val Ala 595 600 605
- Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly 610 620
- Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His Thr 625 630 635 640
- Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Pro

Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly
660 665 670

Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu Glu 675 680 685

Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val Arg 690 695 700

Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr Val 705 710 715 720

Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Asn Ala Arg
725 730 735

Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro 740 745 750

Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu
755 760 765

Phe Pro Arg Leu Xaa Glu Met Gly Ala Arg Met Leu Leu Gln Val His 770 780

Asp Glu Leu Val Leu Glu Ala Pro Lys Xaa Arg Ala Glu Xaa Val Ala 785 790 795 800

Ala Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val Pro 805 810 815

Leu Glu Val Glu Val Gly Xaa Gly Glu Asp Trp Leu Ser Ala Lys Glu 820 825 830

Xaa

<210> 160

<211> 640

<212> RNA

<213> Artificial Sequence

<220>

<223>	Synt	chetic					
<400> gggagco	160 ccag	cuaugaacuc	cuucuccaca	agcgccuucg	guccaguugc	cuucucccug	60
gggcugo	cucc	ugguguugcc	ugcugccuuc	ccugccccag	uacccccagg	agaagauucc	120
aaagaug	guag	ccgccccaca	cagacagcca	cucaccucuu	cagaacgaau	ugacaaacaa	180
auucggu	ıaca	uccucgacgg	caucucagcc	cugagaaagg	agacauguaa	caagaguaac	240
augugug	gaaa	gcagcaaaga	ggcacuggca	gaaaacaacc	ugaaccuucc	aaagauggcu	300
gaaaaag	gaug	gaugcuucca	aucuggauuc	aaugaggaga	cuugccuggu	gaaaaucauc	360
acuggud	cuuu	uggaguuuga	gguauaccua	gaguaccucc	agaacagauu	ugagaguagu	420
gaggaad	caag	ccagagcugu	ccagaugagu	acaaaagucc	ugauccaguu	ccugcagaaa	480
aaggcaa	aaga	aucuagaugc	aauaaccacc	ccugacccaa	ccacaaaugc	cagccugcug	540
acgaago	cugc	aggcacagaa	ccaguggcug	caggacauga	caacucaucu	cauucugcgc	600
agcuuua	aagg	aguuccugca	guccagccug	agggcucuuc			640
<210>	161						
<211>	27						
<212>	DNA						
<213>	Arti	ificial Sequ	ıence				
<220>							
<223>	Synt	chetic					
<400>	161	·.					
agggaga	aagg	caactggacc	gaaggcc				27
<210>	162						
<211>	35						
<212>	DNA		N.				
<213>	Art	ificial Sequ	uence				
<220>							
<223>	Synt	chetic					
<220>							

<221> misc_feature

```
<222> (1)..(1)
<223> TH 5' end has a fluorescein label.
<220>
<221> misc_feature
<222> (35)..(35)
<223> TH 3' end is modified with a dideoxynucleotide.
<400> 162
                                                                     35
ncgaaattaa tacgcttgtg gagaaggagt tcatn
<210> 163
<211> 53
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<400> 163
gctatgaact ccttctccac aagcgccttc ggtccagttg ccttctccct ggg
                                                                     53
<210> 164
<211> 214
<212> PRT
<213> Artificial Sequence
<220>
<223> Synthetic
<400> 164
Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu
```

Phe Ala Asn Leu Trp Gly Arg Leu Glu Glu Glu Arg Leu Leu Trp 35 40 45

Leu Tyr Arg Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met 50 55 60

Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser 65 70 75 80

Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg 85 90 95

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
100 105 110

Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys
115 120 125

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu 130 135 140

Ala His Pro Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys 145 150 155 160

Leu Lys Ser Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg
165 . 170 175

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 180 185 190

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr
195 200 205

Pro Leu Gly Gln Arg Ile 210

<210> 165

<211> 214

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

1).

<400> 165

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly
1 10 15

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu 20 25 30

His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Trp 35 40 45

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met 50 55 60

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser 70 75 80

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg 85 90 95

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
100 105 110

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys 115 120 125

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu 130 135 140

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 145 150 155 160

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 165 170 175

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 180 185 190

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 195 200 205

Pro Leu Gly Gln Arg Ile 210

<210> 166

<211> 37

```
<212> RNA
<213> Artificial Sequence
<220>
<223> Synthetic
<220>
<221> misc_feature
<222> (1)..(1)
<223> TH 5' end is modified with a biotin-streptavitin complex.
<400> 166
                                                                     37
nucacggcag uuggugcgcc ucggaacgag gcgcacg
<210> 167
<211> 17
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<220>
<221> misc_feature
<222> (1)..(1)
<223> TH 5' end is labeled with tetrachlororfluorescein.
<400> 167
                                                                     17
nttttcaact gccgtga
<210> 168
<211> 36
<212> DNA
```

<213> Artificial Sequence

<220>		
<223>	Synthetic	
<400> tcacggo	168 cagt tggtgcgcct cggaacgagg cgcacg	36
<210>	169	
<211>	30	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> cgccga	169 gatc acctttacat tttctatcgt	30
<210>	170	
<211>	24	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ccttcc	170 ttat cctggatctt ggca	24
<210>	171	
<211>	24	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
	Synthetic	
<400>	·	

24

acgatagaaa atgtaaaggt gatc

<210>	172	
<211>	15	
<212>	DNA .	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<220>		
<221>	misc_feature	
<222>	(4)(4)	
<223>	The residue at this position is a z28 linker group.	
<400>	172 ctca gtgcg	15
0001100		
<210>	173	
<211>	29	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	173 gaga atgaggtgat ctcggcggt	29
-99-	<u> </u>	
<210>	174	
<211>	31	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	174	

31

ccgccgagat cacggatgtt gtaatcagag a

<210>	175	
<211>	21	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gtgcag	175 ggtt gactccttct c	21
<210>	176	
<211>	21	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gtgcag	176 ggtt gactctttct c	21
<210>	177	
<211>	21	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gtgcag	177 ggtc gactctttct c	21
<210>	178	
<211>	25	
<212>	DNA	

<213> Artificial Sequence

<220>		
<223>	Synthetic	
<400> tctctg	178 atta caacatccgt gatct	25
<210>	179	
<211>	29	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> cgccga	179 gatc acgtagttga ggtcaatga	29
<210>	180	
<211>	27	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gaatca	180 tact ggaacatgta gaccatc	27
<210>	181	
<211>	24	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> tcattg	181 acct caactacgtg atct	24

24

<210>	182		
<211>	28		
<212>	DNA		
<213>	Artificial Sequence		
<220>			
<223>	Synthetic		
<400>	182 agat cacgatgatc ttgaggct		28
009009	4545 6465465 66545566		20
<210>	183		
<211>	20		
<212>	DNA		
<213>	Artificial Sequence		
<220>			
<223>	Synthetic		
<400>	183 agga ggcattgctc		20
<210>	184		
<211>	23	•	
<212>	DNA		
<213>	Artificial Sequence		
<220>			
<223>	Synthetic		
<400>	184 caag attaccgtga tct		23
J			
<210>	185		
<211>	23		
<212>	DNA		
<213>	Artificial Sequence		

<220>		
<223>	Synthetic	
<400> ccgtca	185 egec tectecaegg etc	23
<210>	186	
<211>	23	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
	186 aagc cctcaatttc cca	23
<210>	187	
<211>	15	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
	187 Egcc gcaca	15
<210>	188	
<211>	17	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	188	

17

gagccgtgga ggaggcg

```
<210> 189
 <211>
        14
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic
 <220>
 <221> misc_feature
 <222> (4)..(4)
<223> The residue at this position is a z28 linker group.
 <400> 189
 cacntgcttc gtgg
                                                                     14
 <210> 190
 <211> 27
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic
 <400> 190
 ccaggaagca agtggaggcg tgacggt
                                                                     27
 <210> 191
 <211> 26
 <212> DNA
 <213> Artificial Sequence
 <220>
 <223> Synthetic
```

<400> 191

ccgtca	cgcc tccttcggag tttggg	26
<210>	192	
<211>	25	
<212>	AND	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	192 tgga gtgagtgttc aagta	25
22200		2,7
<210>	193	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gggaaa	193 ctcc gaaggaggcg	20
333		
<210>	194	
<211>	23	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
	Synthetic	
<400> ccgtca	194 cgcc tctctgactg cca	23
<210>	195	
<211>	27	
<212>	DNA	

<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ttgtca	195 ctcg gggttcgaga agatgaa	27
<210>	196	
<211>	11	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gggcca	196 gagg g	11
<210>	197	
<211>	17	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> aggcag	197 tcag agaggcg	17
<210>	198	
<211>	26	
<212>	DNA	
<213>	Artificial Sequence	
<220>		

<223> Synthetic

<400> ccgtca	198 egec teeteeteat tgaatt	26
<210>	199	
<211>	35	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ccaaaa	199 gtcc agtgatgatt ttcaccaggc aagta	35
<210>	200	
<211>	20	
<212>		
<213>	Artificial Sequence	
<220>		
	Synthetic	
<400> cagatt	200 ggaa gcatccatct	20
210		
<210>		
<211> <212>		
	Artificial Sequence	
(213)	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>		
gattca	atga ggaggaggc	19
<210>	202	
<211>	24	

<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ccgtcad		24
<210>	203	
<211>	22	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> caggtco	203 ctgg aaggagcact ta	22
<210>	204	
<211>	27	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gccatca	204 agct tctttgttct tgtcatc	27
<210>	205	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	

<220>

<223>	Synthetic	
	205 aaca gatggaggcg	20
<210>	206	
<211>	24	
<212>	DNA	
<213>	Artificial Sequence	1
<220>		
<223>	Synthetic	
<400> ccgtca	206 cgcc tcctccagtt gtag	24
<210>	207	
<211>	30	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> aaaatc	207 atct gtaaatccag cagtaaatga	30
<210>	208	
<211>	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ctgtgt	208 tttc tttgtagaac	20
<210>	209	

<211>	17	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ctacaa	209 ctgg aggaggc	17
<210>	210	
<211>	23	,
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ccgtca	210 egec teeteteagt tet	23
<210>		
<211>		
<212>		
<213>	Artificial Sequence	
<220>	Constitute 1	
	Synthetic	
<400> gtgtgg	211 tcca ctctcaatca a	21
<210>	212	
<211>	26	
<212>	DNA	
~~~~		

<213> Artificial Sequence

<220>		
<223>	Synthetic	
<220>		
<221>	modified_base	
<222>	(1)(1)	
<223>	The residue at tH position contains a TET-label.	
<400> attaga	212 aagg aagggaagaa agcgaa	26
<210>	213	
<211>	30 ·	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gcttga	213 cggg gaaagccggc gaacgtggcg	30
<210>	214	
<211>	30	
<212>	DNA	
<213>	Artificial Sequence	
<220>	·	
<223>		
<400> cttgac	214 gggg aaagccggcg aacgtggcga	30
<210>	215	
<211>		
<212>	DNA	
<213>	Artificial Sequence	

<220>		
<223>	Synthetic	
<400> tgacgg	215 ggaa agccggcgaa cgtggcgaga	30
<210>	216	
<211>	30	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	216 aaag ccggcgaacg tggcgagaaa	30
~~5555	adag ooggegaacg	,
<210>	217	
<211>	53	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
	217 ttot tocottoott totogooacg ttogooggot ttoocogtoa ago	53
220502	teed teedered teedgeedget teedeegted age	J.
<210>	218	
<211>	18	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<220>		
<221>	modified_base	

<222>	(1)(1)	,
<223>	The residue at tH positions contains a fluoroscein label.	
<400>	218 ptcct cetettee	18
		10
<210>	219	
<211>	30	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	•
<400>	219 gtgtc ctcccgctcc tcctgagcaa	30
aoaoag	- Control of the cont	30
<210>	220	
<211>	54	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	220 · gaaga ggaggaggt gctcaggagg agcgggagga cactgtgtct gtca	54
acgagg	gaaga gaaggaagga gaaaaggaagga caaaggagaa gaaa	24
<210>	221	
<211>	840	
<212>	PRT	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	

<400> 221

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Ala Val Ile Val Val Phe Asp Ala Glu Ala Pro Ser Phe Arg His Glu Ala Tyr Gly Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu 165 175 Arg Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser 180 Asp Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Leu Lys 195 Leu Leu Lys Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp 210 215 Arg Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp 225

250

Leu Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu

245

Glu Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Gly Leu Lys Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu Gly Gly Glu Lys Pro Arg Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala Asp Leu Leu Ala Leu Ala Ala Cys Arg Gly Gly Arg Val His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val Arg Gly 340 345 Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly Leu Asp 355 360 Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro 370 375 Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn Leu Leu Lys Arg Leu Glu Gly Glu Lys Leu Leu Trp Leu Tyr 420 His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Val Phe Arg Leu Ala 475 Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu

Phe Asp Glu Leu Arg Leu Pro Ala Leu Lys Lys Thr Lys Lys Thr Gly

- Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His 515 520 525
- Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys Leu Lys 530 540
- Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg Thr Gly 545 550 555 560
- Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu 565 570 575
- Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu 580 585 590
- Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp Ala Leu 595 600 605
- Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu 610 620
- Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys Asp Ile 625 630 635 640
- His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val 645 650 655
- Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu 660 665 670
- Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr 675 680 685
- Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys 690 695 700
- Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys Arg Gly 705 710 715 720
- Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Asn 725 730 735
- Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn 740 745 750

Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val 755 760 765

Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu Leu Gln 770 780

Val Ala Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala Glu Glu 785 790 795 800

Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro Leu Ala 805 810 815

Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu Ser Ala 820 825 830

Lys Gly His His His His His 835 840

<210> 222

<211> 2520

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 222

atgaattccg aggcgatgct tccgctcttt gaacccaaag gccgggtcct cctggtggac 60 ggccaccacc tggcctaccg tacctttttt gccctgaagg gcctcaccac cagccggggg 120 gagccggtcc aggcggtgta cgggtttgcc aagagccttt tgaaggcgct aagagaagac 180 ggggacgcgg tgatcgtggt ctttgacgcc gaggccccct ccttccgcca cgaggcctac 240 ggggggtaca aggcggggcg ggctcccacc cccgaggact ttccccggca gcttgccctt 300 atcaaggage tggtggacet cetggggttt accegeeteg aggteeeegg etacgaggeg 360 gacgacgttc tegecaccct ggccaagaag geggaaaagg aggggtaega ggtgegeate 420 ctcaccgccg acaaagacct ttaccagctc ctttccgacc gcatccacgt cctccacccc 480 gaggggtacc tcatcacccc ggcctggctt tgggaaaagt acggcctgag gcccgaccag 540 tgggccgact accgggccct gaccggggac gagtccgaca accttcccgg ggtcaagggc 600 atcggggaga agaccgccct caagctcctc aaggagtggg ggagcctgga agccctcctc 660 aagaacetgg aceggetgaa geeegeeate egggagaaga teetggeeea catggaegat 720

780 etgaagetet cetgggacet ggecaaggtg egeacegace tgeceetgga ggtggactte 840 gccaaaaggc gggagcccga ccgggagggg cttaaggcct ttttggagag gctggagttc 900 ggcagcetce tecaegagtt eggeeteetg ggaggggaga ageeeeggga ggaggeeeee tggcccccgc cggaaggggc cttcgtgggc tttgtgcttt cccgcaagga gcccatgtgg 960 geogatette tggecetgge egeetgeagg ggeggeegeg tgeaceggge ageagaceee 1020 1080 ttggcggggc taaaggacct caaggaggtc cggggcctcc tcgccaagga cctcgccgtc ttggcctcga gggaggggct agacctcgtg cccggggacg accccatgct cctcgcctac 1140 ctcctggacc cttcgaacac caccccgag ggggtggcgc ggcgctacgg gggggagtgg 1200 acggaggacg ccgcccaccg ggccctcctc tcggagaggc tccatcggaa cctccttaag 1260 cgcctcgagg gggaggagaa gctcctttgg ctctaccacg aggtggaaaa gcccctctcc 1320 cgggtcctgg cccatatgga ggccaccggg gtacggcggg acgtggccta ccttcaggcc 1380 ettteeetgg agettgegga ggagateege egeetegagg aggaggtett eegettggeg 1440 ggccacccct tcaacctcaa ctcccgggac cagctggaaa gggtgctctt tgacgagctt 1500 aggetteeeg eettgaagaa gaegaagaag acaggeaage geteeaceag egeegeggtg 1560 ctggaggccc tacgggaggc ccaccccatc gtggagaaga tcctccagca ccgggagctc 1620 accaagetea agaacaceta egtggacece eteceaagee tegtecacee gaggaeggge 1680 cgcctccaca cccgcttcaa ccagacggcc acggccacgg ggaggcttag tagctccgac 1740 eccaacetge agaacateee egteegeace eeettgggee agaggateeg eegggeette 1800 gtggccgagg cgggttgggc gttggtggcc ctggactata gccagataga gctccgcgtc 1860 ctcgcccacc tctccgggga cgaaaacctg atcagggtct tccaggaggg gaaggacatc 1920 cacacccaga ccgcaagetg gatgttcggc gtccccccgg aggccgtgga ccccctgatg 1980 cgccgggcgg ccaagacggt gaacttcggc gtcctctacg gcatgtccgc ccataggctc 2040 teccaggage ttgecateee etaegaggag geggtggeet ttatagageg etaettecaa 2100 agetteecea aggtgeggge etggatagaa aagaeeetgg aggaggggag gaagegggge 2160 tacgtggaaa ccctcttcgg aagaaggege tacgtgcccg acctcaacge ccgggtgaag 2220 agcgtcaggg aggccgcgga gcgcatggcc ttcaacatgc ccgtccaggg caccgccgcc 2280 gacctcatga agctcgccat ggtgaagctc ttcccccgcc tccgggagat gggggcccgc 2340 atgeteetee aggtegeeaa egageteete etggaggeee eecaagegeg ggeegaggag 2400 gtggcggctt tggccaagga ggccatggag aaggcctatc ccctcgccgt gcccctggag 2460 gtggaggtgg ggatgggga ggactggctt tccgccaagg gtcaccacca ccaccaccac 2520

```
<211> 16
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<220>
<221> misc_feature
<222> (1)..(1)
<223> TH 5' end has a fluorescein label.
<220>
<221> misc_feature
<222> (6)..(6)
<223> The residue at tH position is a cy3 abasic linker group.
<400> 223
negetntete getege
                                                                     16
<210> 224
<211> 18
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<400> 224
acggaacgag cgtctttg
                                                                     18
<210> 225
<211> 32
<212> RNA
```

<213> Artificial Sequence

<220>		
<223>	Synthetic	
<400> gcgagc	225 gaga cagcgaaaga cgcucguucc gu	32
<210>	226	
<211>	32	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gcgagc	226 gaga cagcgaaaga cgctcgttcc gt	32
<210>	227	
<211>	29	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> acggaa	227 cgag cgtctttcat ctgtcaatc	29
<210>	228	
<211>	26	
<212>	RNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	228	

26

ucacggcagu uggugcggaa cgcacg

```
<210> 229
<211> 26
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<400> 229
tcacggcagt tggtgcggaa cgcacg
                                                                    26
<210> 230
<211> 30
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<220>
<221> misc_feature
<222> (30)..(30)
<223> TH 3' end is modified with an amine moiety.
<400> 230
cggaggaagc agttggtgcg cctcgttaan
                                                                    30
<210> 231
<211> 23
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
```

<220>

```
<221> misc_feature
<222> (1)..(1)
<223> TH 5' end is labeled with fluorescein.
<400> 231
ntccttctca actgcttcct ccg
                                                                     23
<210> 232
<211> 28
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<220>
<221> misc_feature
<222> (28)..(28)
<223> TH 3' end is modified with a biotin moiety.
<400> 232
aacgaggcgc acctcaaatc tccctttn
                                                                    28
<210> 233
<211> 26
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<220>
<221> misc_feature
<222> (1)..(1)
```

<223> TH 5' end is labeled with fluorescein.

<400> nagcga	233 gaca gcgaaagacg ctcgtt	26
<210>	234	
<211>	17	
<212>	AND	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<220>		
<221>	misc_feature	
<222>	(1)(1)	
<223>	TH 5' end is labeled with fluorescein.	
400		
<400> nttttc	gctg teteget	17
<210>		
<211>		
<212>		
<213>	Artificial Sequence	
<220>		
	Synthetic	
<400>		
	gtet ttg	13
<210>	236	
<211>	36	
<212>	DNA	
	Artificial Sequence	

<220>

<223>	Synt	thetic					
<400> cacgaat	236 ttcg	gggatgctgc	ccctctttga	gcccaa			36
<210>	237						
<211>	34						
<212>	DNA						
<213>	Art	ificial Sequ	ience				
<220>							
<223>	Synt	thetic					
<400> gtgagat		tcactccttg	gcggagagcc	agtc			34
<210>	238			•			
<211>	2502	2					
<212>	DNA						
<213>	Art	ificial Sequ	ience				
<220>							
<223>	Synt	thetic					
<400> atgaatt	238 cgg	ggatgctgcc	cctctttgag	cccaagggcc	gggtcctcct	ggtggacggc	60
caccac	ctgg	cctaccgcac	cttccacgcc	ctgaagggcc	tcaccaccag	ccggggggag	120
ccggtg	cagg	cggtctacgg	cttcgccaag	agcctcctca	aggccctcaa	ggaggacggg	180
gacgcgg	gtga	tcgtggtctt	tgacgccaag	gccccctcct	tccgccacga	ggcctacggg	240
gggtaca	aagg	cgggccgggc	ccccacgccg	gaggactttc	cccggcaact	cgccctcatc	300
aaggag	ctgg	tggacctcct	ggggctggcg	cgcctcgagg	tcccgggcta	cgaggcggac	360
gacgtc	ctgg	ccagcctggc	caagaaggcg	gaaaaggagg	gctacgaggt	ccgcatcctc	420
accgccg	gaca	aagaccttta	ccagctcctt	tccgaccgca	tccacgtcct	ccaccccgag	480
gggtaco	ctca	tcaccccggc	ctggctttgg	gaaaagtacg	gcctgaggcc	cgaccagtgg	540
gccgact	cacc	gggccctgac	cggggacgag	tccgacaacc	ttcccggggt	caagggcatc	600
ggggaga	aaga	cggcgaggaa	gcttctggag	gagtgggga	gcctggaagc	cctcctcaag	660
aacctg	gacc	ggctgaagcc	cgccatccgg	gagaagatcc	tggcccacat	ggacgatctg	720

aagctctcct	gggacctggc	caaggtgcgc	accgacctgc	ccctggaggt	ggacttcgcc	780
aaaaggcggg	agcccgaccg	ggagaggctt	agggcctttc	tggagaggct	tgagtttggc	840
agcctcctcc	acgagttcgg	ccttctggaa	agccccaagg	ccctggagga	ggccccctgg	900
ccccgccgg	aaggggcctt	cgtgggcttt	gtgctttccc	gcaaggagcc	catgtgggcc	960
gatcttctgg	ccctggccgc	cgccaggggg	ggccgggtcc	accgggcccc	cgagccttat	1020
aaagccctca	gggacctgaa	ggaggcgcgg	gggcttctcg	ccaaagacct	gagcgttctg	1080
gccctgaggg	aaggccttgg	cctcccgccc	ggcgacgacc	ccatgctcct	cgcctacctc	1140
ctggaccctt	ccaacaccac	ccccgagggg	gtggcccggc	gctacggcgg	ggagtggacg	1200
gaggaggcgg	gggagcgggc	cgccctttcc	gagaggctct	tcgccaacct	gtgggggagg	1260
cttgaggggg	aggagaggct	cctttggctt	taccgggagg	tggagaggcc	cctttccgct	1320
gtcctggccc	acatggaggc	cacgggggtg	cgcctggacg	tggcctatct	cagggccttg	1380
tccctggagg	tggccgggga	gatcgcccgc	ctcgaggccg	aggtcttccg	cctggccggc	1440
caccccttca	acctcaactc	ccgggaccag	ctggaaaggg	tcctctttga	cgagctaggg	1500
cttcccgcca	tcggcaagac	ggagaagacc	ggcaagcgct	ccaccagcgc	cgccgtcctg	1560
gaggccctcc	gcgaggccca	ccccatcgtg	gagaagatcc	tgcagtaccg	ggagctcacc	1620
aagctgaaga	gcacctacat	tgaccccttg	ccggacctca	tccaccccag	gacgggccgc	1680
ctccacaccc	gcttcaacca	gacggccacg	gccacgggca	ggctaagtag	ctccgatccc	1740
aacctccaga	acatccccgt	ccgcaccccg	cttgggcaga	ggatccgccg	ggccttcatc	1800
gccgaggagg	ggtggctatt	ggtggccctg	gactatagcc	agatagagct	cagggtgctg	1860
gcccacctct	ccggcgacga	gaacctgatc	cgggtcttcc	aggaggggg	ggacatccac	1920
acggagaccg	ccagctggat	gttcggcgtc	ccccgggagg	ccgtggaccc	cctgatgcgc	1980
cgggcggcca	agaccatcaa	cttcggggtc	ctctacggca	tgtcggccca	ccgcctctcc	2040
caggagctag	ccatccctta	cgaggaggcc	caggccttca	ttgagcgcta	ctttcagagc	2100
ttccccaagg	tgcgggcctg	gattgagaag	accctggagg	agggcaggag	gcgggggtac	2160.
gtggagaccc	tcttcggccg	ccgccgctac	gtgccagacc	tagaggcccg	ggtgaagagc	2220
gtgcgggagg	cggccgagcg	catggccttc	aacatgcccg	tccggggcac	cgccgccgac	2280
ctcatgaagc	tggctatggt	gaagctcttc	cccaggctgg	aggaaatggg	ggccaggatg	2340
ctccttcagg	tccacgacga	gctggtcctc	gaggccccaa	aagagagggc	ggaggccgtg	2400
gcccggctgg	ccaaggaggt	catggagggg	gtgtatcccc	tggccgtgcc	cctggaggtg	2460
gaggtgggga	taggggagga	ctggctctcc	gccaaggagt	ga		2502

<211> 833

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 239

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln . 85 90 95

Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Leu Ala Arg Leu 100 105 110

Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125

Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140

Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160

Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175

Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190

Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265		Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leu	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asn
Leu	Trp	Gly	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg
Glu	Val	Glu 435	Arg	Pro	Leu	Ser	Ala	Val	Leu	Ala	His	Met	Glu	Ala	Thr

Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 460

Ala Gly Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 475 480

His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe
485 490 495

Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys 500 505 510

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 · 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr
660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val

690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Arg Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asp Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu

<210> 240

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 240

cacgaattcc gaggcgatgc ttccgctc

<210> 241

<211> 30

<212> DNA

28

<220	>				•											
<223	> 5	Synth	etic	;												
<400 tcga		241 cga c	taac	cctt	g go	:ggaa	agco	:								30
<210	> 2	242														
<211	> 2	23														
<212	> I	ONA														
<213	> 2	Artif	icia	al Se	equer	ıce										
<220	>															
<223	> 5	Synth	etic	3												
<400 gcat		242 ctc <u>c</u>	gaat	tcat	g gt	c										23
<210	> :	243														
<211	.> {	336														
<212	> 1	PRT														
<213	> [	Therm	nus t	herm	nophi	lus										
400																
<400		243														
Met 1	Asn	Ser	Glu	Ala 5	Met	Leu	Pro	Leu	Phe 10	Glu	Pro	Lys	Gly	Arg 15	Val	
Leu	Leu	Val	Asp 20	Gly	His	His	Leu	Ala 25	Tyr	Arg	Thr	Phe	Phe 30	Ala	Leu	
Lys	Gly	Leu 35	Thr	Thr	Ser	Arg	Gly 40	Glu	Pro	Val	Gln	Ala 45	Val	Tyr	Gly	
	Ala	Lys	Ser	Leu	Leu	Lys	Ala	Leu	Lys	Glu	Asp	Gly	Tyr	Lys	Ala	

<213> Artificial Sequence

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80 80

Tyr	Glu	Ala	Tyr	Lys 85	Ala	Gly	Arg	Ala	Pro 90	Thr	Pro	Glu	Asp	Phe 95	Pro
Arg	Gln	Leu	Ala 100	Leu	Ile	Lys	Glu	Leu 105	Val	Asp	Leu	Leu	Gly 110	Phe	Thr
Arg	Leu	Glu 115	Val	Pro	Gly	Tyr	Glu 120	Ala	Asp	Asp	Val	Leu 125	Ala	Thr	Leu
Ala	Lys 130	Lys	Ala	Glu	Lys	Glu 135	Gly	Tyr	Glu	Val	Arg 140	Ile	Leu	Thr	Ala
Asp 145	Arg	Asp	Leu	Tyr	Gln 150	Leu	Val	Ser	Asp	Arg 155	Val	Ala	Val	Leu	His 160
Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Asp	Gly	Arg 335	Val

His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val 340 345 350

Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly 355 360 365

Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu 370 380

Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly 385 390 395 400

Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu 405 , 410 415

His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Trp
420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met
435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser 450 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys 500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu
515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 530 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr

${\tt Pro}$	Leu	Gly	Gln	Arg	Ile	Arg	Arg	Ala	Phe	Val	Ala	Glu	Ala	Gly	Trp
		595					600					605			

- Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 620
- His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 635 635
- Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650 655
- Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 665 670
- Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685
- Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 700
- Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720
- Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp 725 730 735
- Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750
- Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765
- Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 780
- Leu Gln Val His Asp Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800
- Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815
- Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

## Ser Ala Lys Gly 835

<210> 244

<211> 2511

<212> DNA

<213> Thermus thermophilus

<400> 244						
	aggcgatgct	teegetettt	gaacccaaag	gccgggtcct	cctggtggac	60
ggccaccacc	tggcctaccg	caccttcttc	gccctgaagg	gcctcaccac	gagccggggc	120
gaaccggtgc	aggcggtcta	cggcttcgcc	aagagcctcc	tcaaggccct	gaaggaggac	180
gggtacaagg	ccgtcttcgt	ggtctttgac	gccaaggccc	cctccttccg	ccacgaggcc	240
tacgaggcct	acaaggcggg	gagggccccg	acccccgagg	acttcccccg	gcagctcgcc	300
ctcatcaagg	agctggtgga	cctcctgggg	tttacccgcc	tcgaggtccc	cggctacgag	360
gcggacgacg	ttctcgccac	cctggccaag	aaggcggaaa	aggaggggta	cgaggtgcgc	420
atcctcaccg	ccgaccgcga	cctctaccaa	ctcgtctccg	accgcgtcgc	cgtcctccac	480
cccgagggcc	acctcatcac	cccggagtgg	ctttgggaga	agtacggcct	caggccggag	540
cagtgggtgg	acttccgcgc	cctcgtgggg	gacccctccg	acaacctccc	cggggtcaag	600
ggcatcgggg	agaagaccgc	cctcaagctc	ctcaaggagt	ggggaagcct	ggaaaacctc	660
ctcaagaacc	tggaccgggt	aaagccagaa	aacgtccggg	agaagatcaa	ggcccacctg	720
gaagacctca	ggctctcctt	ggagctctcc	cgggtgcgca	ccgacctccc	cctggaggtg	780
gacctcgccc	aggggcggga	gcccgaccgg	gaggggctta	gggccttcct	ggagaggctg	840
gagttcggca	gcctcctcca	cgagttcggc	ctcctggagg	cccccgcccc	cctggaggag	900
gccccctggc	ccccgccgga	aggggccttc	gtgggcttcg	tcctctcccg	ccccgagccc	960
atgtgggcgg	agcttaaagc	cctggccgcc	tgcagggacg	gccgggtgca	ccgggcagca	1020
gaccccttgg	cggggctaaa	ggacctcaag	gaggtccggg	gcctcctcgc	caaggacctc	1080
gccgtcttgg	cctcgaggga	ggggctagac	ctcgtgcccg	gggacgaccc	catġctcctc	1140
gcctacctcc	tggacccctc	caacaccacc	cccgaggggg	tggcgcggcg	ctacgggggg	1200
gagtggacgg	aggacgccgc	ccaccgggcc	ctcctctcgg	agaggctcca	tcggaacctc	1260
cttaagcgcc	tcgaggggga	ggagaagctc	ctttggctct	accacgaggt	ggaaaagccc	1320
ctctcccggg	tcctggccca	catggaggcc	accggggtac	ggcgggacgt	ggcctacctt	1380
caggcccttt	ccctggagct	tgcggaggag	atccgccgcc	tcgaggagga	ggtetteege	1440

ttggcgggcc	accccttcaa	cctcaactcc	cgggaccagc	tggaaagggt	gctctttgac	1500
gagcttaggc	ttcccgcctt	ggggaagacg	caaaagacag	gcaagcgctc	caccagcgcc	1560
gcggtgctgg	aggccctacg	ggaggcccac	cccatcgtgg	agaagatcct	ccagcaccgg	1620
gagctcacca	agctcaagaa	cacctacgtg	gaccccctcc	caagcctcgt	ccacccgagg	1680
acgggccgcc	tccacacccg	cttcaaccag	acggccacgg	ccacggggag	gcttagtagc	1740
tccgacccca	acctgcagaa	catccccgtc	cgcaccccct	tgggccagag	gateegeegg	1800
gccttcgtgg	ccgaggcggg	ttgggcgttg	gtggccctgg	actatagcca	gatagagctc	1860
cgcgtcctcg	cccacctctc	cggggacgaa	aacctgatca	gggtcttcca	ggagggaag	1920
gacatccaca	cccagaccgc	aagctggatg	ttcggcgtcc	ccccggaggc	cgtggacccc	1980
ctgatgcgcc	gggcggccaa	gacggtgaac	ttcggcgtcc	tctacggcat	gtccgcccat	2040
aggctctccc	aggagcttgc	catcccctac	gaggaggcgg	tggcctttat	agagcgctac	2100
ttccaaagct	tccccaaggt	gcgggcctgg	atagaaaaga	ccctggagga	ggggaggaag	2160
cggggctacg	tggaaaccct	cttcggaaga	aggcgctacg	tgcccgacct	caacgcccgg	2220
gtgaagagcg	tcagggaggc	cgcggagcgc	atggccttca	acatgcccgt	ccagggcacc	2280
gccgccgacc	tcatgaagct	cgccatggtg	aagctcttcc	cccgcctccg	ggagatgggg	2340
gcccgcatgc	tcctccaggt	ccacgacgag	ctcctcctgg	aggcccccca	agcgcgggcc	2400
gaggaggtgg	cggctttggc	caaggaggcc	atggagaagg	cctatcccct	cgccgtgccc	2460
ctggaggtgg	aggtggggat	gggggaggac	tggctttccg	ccaagggtta	g	2511

<210> 245

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 245

atagccatgg tggagcggcc gctctcccgg

<210> 246

<211> 33

<212> DNA

<213> Artificial Sequence

<220>			
<223>	Synthetic		
<400> aagcgt	246 cgac tcaatcctgc ttcgcctcca gcc	3	3
<210>	247		
<211>	32		
<212>	DNA		
<213>	Artificial Sequence		
<220>			
<223>	Synthetic		
<400> aatcgaa	247 attc accccacttt ttgacctgga gg	3	2
<210>	248		
<211>	21		
<212>	DNA		
<213>	Artificial Sequence		
<220>			
<223>	Synthetic		
	248 gagc ggccgctcca c	2	1
<210>	249		
<211>	2508		
<212>	DNA		
<213>	Artificial Sequence		
<220>			
<223>	Synthetic		
<400> atggaat	249 ttca ccccactttt tgacctggag gaaccccca agcgggtgct to	etggtggac 6	0

120 ggccaccacc tggcctaccg caccttctat gccctgagcc tcaccacctc ccggggggag 180 ccggtgcaga tggtctacgg cttcgcccgg agcctcctca aggccttgaa ggaggacgga caggoggtgg togtggtott tgacgocaag gooccotoot toogcoacga ggootacgag 240 300 gcctacaagg cgggccgggc ccccaccccg gaggacttcc cccgccagct cgccttggtc 360 aageggetgg tggacettet gggeetggte egeetegagg eeceggggta egaggeggae gacgtcctgg gcaccctggc caagaaggcc gaaagggagg ggatggaggt gcgcatcctc 420 480 acgggagacc gggacttett ceageteete teegagaagg teteggteet eetgeeggae 540 gggaccetgg tcaccccaaa ggacgtccag gagaagtacg gggtgccccc ggagcgctgg 600 gtggacttcc gcgccctcac gggggaccgc tcggacaaca tccccggggt ggcggggata 660 ggggagaaga ccgcccttcg actcctcgca gagtggggga gcgtggaaaa cctcctgaag 720 aacctggacc gggtaaagcc ggactcgctc cggcgcaaga tagaggcgca cctcgaggac 780 etecacetet cettagacet ggecegeate egeacegace tececetgga ggtggacttt 840 aaggccctgc gccgcaggac ccccgacctg gagggcctga gggcctttttt ggaggagctg gagttcggaa gcctcctcca cgagttcggc ctcctgggag gggagaagcc ccgggaggag 900 960 gccccctggc ccccgcccga aggggccttc gtgggcttcc tcctttcccg caaggagccc 1020 atgtgggcgg agcttctggc cctggcggcg gcctcggagg gccgggtcca ccgggcaaca agcccggttg aggccctggc cgacctcaag gaggcccggg ggttcctggc caaggacctg 1080 gccgttttgg ccctgcggga gggggtggcc ctggacccca cggacgaccc cctcctggtg 1140 1200 gcctacetec tggacecgge caacacecae eecgagggg tggeeeggeg etaeggggge gagttcacgg aggacgcagc ggagagggcc ctcctctccg agaggctctt ccagaacctc 1260 tttccccggc tttccgagaa gctcctctgg ctctaccagg aggtggagcg gccctctcc 1320 cgggtcttgg cccacatgga ggcccggggg gtgaggctgg acgtccccct tctggaggcc 1380 ctctcctttg agctggagaa ggagatggag cgcctggagg gggaggtctt ccgtttggcc 1440 ggccacccct tcaacctcaa ctcccgcgac cagctggaaa gggtcctctt tgacgagctg 1500 ggcctcaccc cggtgggccg gacggagaag acgggcaagc gctccaccgc ccagggggcc 1560 ctggaggccc tccggggggc ccaccccatc gtggagctca tcctccagta ccgggagctt 1620 tccaagctca aaagcaccta cctggacccc ctgccccggc tcgtccaccc gcggacgggc 1680 eggetecaca ecegetteaa ecagaeggee aeggeeaegg gaaggettte eageteegae 1740 cccaacctgc agaacatccc cgtgcgcacc cccttggggc agcgcatccg caaggccttc 1800 gtggccgagg aggggtggct ccttttggcg gcggactact cccagattga gctccgggtc 1860 etggeecace teteggggga egagaacetg aagegggtet teegggaggg gaaggacate 1920

cataccgaga ccgccgcctg gatgttcggc ttagaccccg ctctggtgga tccaaagatg 1980 cgccgggcgg ccaagacggt caacttcggc gtcctctacg ggatgtccgc ccacaggctc 2040 tcccaggagc tcggcataga ctacaaggag gcggaggcct ttattgagcg ctacttccag 2100 agetteecea aggtgeggge etggatagaa aggaeeetgg aggagggeeg gaegeggge 2160 tacgtggaga ccctgttcgg caggaggcgc tatgtgcccg acctggcctc ccgggtccgc 2220 teggtgeggg aggeggegga geggatggee tteaacatge eegtgeaggg caeegeegee 2280 gacctgatga agatcgccat ggtcaagctc ttccccaggc taaagcccct gggggcccac 2340 ctcctcctcc aagtgcacga cgagctggtc ctggaggtgc ccgaggaccg ggccgaggag 2400 gccaaggccc tggtcaagga ggtcatggag aacgcctacc ccctggacgt gcccctcgag 2460 2508 gtggaggtgg gcgtgggtcg ggactggctg gaggcgaagc aggattga

<210> 250

<211> 835

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 250

Met Glu Phe Thr Pro Leu Phe Asp Leu Glu Glu Pro Pro Lys Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Tyr Ala Leu 20 25 30

Ser Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe 35 40 45

Ala Arg Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Gln Ala Val Val 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu 65 70 75 80

Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu Ala Leu Val Lys Arg Leu Val Asp Leu Leu Gly Leu Val Arg Leu

- Glu Ala Pro Gly Tyr Glu Ala Asp Asp Val Leu Gly Thr Leu Ala Lys 115 120 125
- Lys Ala Glu Arg Glu Gly Met Glu Val Arg Ile Leu Thr Gly Asp Arg 130 135 140
- Asp Phe Phe Gln Leu Leu Ser Glu Lys Val Ser Val Leu Leu Pro Asp 145 150 155 160
- Gly Thr Leu Val Thr Pro Lys Asp Val Gln Glu Lys Tyr Gly Val Pro 165 170 175
- Pro Glu Arg Trp Val Asp Phe Arg Ala Leu Thr Gly Asp Arg Ser Asp 180 185 190
- Asn Ile Pro Gly Val Ala Gly Ile Gly Glu Lys Thr Ala Leu Arg Leu 195 200 205
- Leu Ala Glu Trp Gly Ser Val Glu Asn Leu Leu Lys Asn Leu Asp Arg 210 215 220
- Val Lys Pro Asp Ser Leu Arg Arg Lys Ile Glu Ala His Leu Glu Asp 225 230 235 240
- Leu His Leu Ser Leu Asp Leu Ala Arg Ile Arg Thr Asp Leu Pro Leu 245 250 255
- Glu Val Asp Phe Lys Ala Leu Arg Arg Arg Thr Pro Asp Leu Glu Gly 260 265 270
- Leu Arg Ala Phe Leu Glu Glu Leu Glu Phe Gly Ser Leu Leu His Glu 275 280 285
- Phe Gly Leu Leu Gly Gly Glu Lys Pro Arg Glu Glu Ala Pro Trp Pro 290 295 300
- Pro Pro Glu Gly Ala Phe Val Gly Phe Leu Leu Ser Arg Lys Glu Pro 305 310 315
- Met Trp Ala Glu Leu Leu Ala Leu Ala Ala Ser Glu Gly Arg Val 325 330 335
- His Arg Ala Thr Ser Pro Val Glu Ala Leu Ala Asp Leu Lys Glu Ala 340 345 350

Arg	Gly	Phe 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Leu 365	Arg	Glu	Gly
Val	Ala 370	Leu	Asp	Pro	Thr	Asp 375	Asp	Pro	Leu	Leu	Val 380	Ala	Tyr	Leu	Leu
Asp 385	Pro	Ala	Asn	Thr	His 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Phe	Thr	Glu	Asp 405	Ala	Ala	Glu	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
Phe	Gln	Asn	Leu 420	Phe	Pro	Arg	Leu	Ser 425	Glu	Lys	Leu	Leu	Trp 430	Leu	Tyr
Gln	Glu	Val 435	Glu	Arg	Pro	Leu	Ser 440	Arg	Val	Leu	Ala	His 445	Met	Glu	Ala
Arg	Gly 450	Val	Arg	Leu	Asp	Val 455	Pro	Leu '	Leu	Glu	Ala 460	Leu	Ser	Phe	Glu
Leu 465	Glu	Lys	Glu	Met	Glu 470	Arg	Leu	Glu	Gly	Glu 475	Val	Phe	Arg	Leu	Ala 480
Gly	His	Pro	Phe	Asn 485	Leu	Asn	Ser	Arg	Asp 490	Gln	Leu	Glu	Arg	Val 495	Leu
Phe	Asp	Glu	Leu 500	Gly	Leu	Thr	Pro	Val 505	Gly	Arg	Thr	Glu	Lys 510	Thr	Gly
Lys	Arg	Ser 515	Thr	Ala	Gln	Gly	Ala 520	Leu	Glu	Ala	Leu	Arg 525	Gly	Ala	His
Pro	Ile 530	Val	Glu	Leu	Ile	Leu 535	Gln	Tyr	Arg	Glu	Leu 540	Ser	Lys	Leu	Lys
Ser 545	Thr	Tyr	Leu	Asp	Pro 550	Leu	Pro	Arg	Leu	Val 555	His	Pro	Arg	Thr	Gly 560
Arg	Leu	His	Thr	Arg 565	Phe	Asn	Gln	Thr	Ala 570	Thr	Ala	Thr	Gly	Arg 575	Leu
Ser	Ser	Ser	Asp 580	Pro	Asn	Leu	Gln	Asn 585	Ile	Pro	Val	Arg	Thr 590	Pro	Leu
Gly	Gln	Arg	Ile	Arg	Lys	Ala	Phe	Val	Ala	Glu	Glu	Gly	Trp	Leu	Leu

Leu Ala Ala Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu 610 620

Ser Gly Asp Glu Asn Leu Lys Arg Val Phe Arg Glu Gly Lys Asp Ile 625 630 635 640

His Thr Glu Thr Ala Ala Trp Met Phe Gly Leu Asp Pro Ala Leu Val 645 650 655

Asp Pro Lys Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly Val Leu 660 665 670

Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Gly Ile Asp Tyr 675 680 685

Lys Glu Ala Glu Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys 690 695 700

Val Arg Ala Trp Ile Glu Arg Thr Leu Glu Glu Gly Arg Thr Arg Gly 705 710 715 720

Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Ala 725 730 735

Ser Arg Val Arg Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn 740 745 750

Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Ile Ala Met Val 755 760 765

Lys Leu Phe Pro Arg Leu Lys Pro Leu Gly Ala His Leu Leu Gln 770 780

Val His Asp Glu Leu Val Leu Glu Val Pro Glu Asp Arg Ala Glu Glu 785 790 795 800

Ala Lys Ala Leu Val Lys Glu Val Met Glu Asn Ala Tyr Pro Leu Asp 805 810 815

Val Pro Leu Glu Val Glu Val Gly Val Gly Arg Asp Trp Leu Glu Ala 820 825 830

Lys Gln Asp 835

<210> 251

<211>	31					
<212>	DNA					
<213>	Artificial Seq	uence				
<220>						
<223>	Synthetic					
<400> actgga	251 attc ctgcccctct	ttgagcccaa	g			31
<210>	252					
<211>	30					
<212>	DNA					
<213>	Artificial Seq	uence				
<220>						
<223>	Synthetic	,				
<400> aacagt	252 cgac ctaggccttg	gcggaaagcc				30
<210>	253					
<211>	2499					
<212>	DNA					
<213>	Artificial Seq	uence				
<220>						
<223>	Synthetic					
<400> atggaa	253 ttcc tgcccctctt	tgagcccaag	ggccgggtgc	ttctggtgga	cggccaccac	60
ctggcc	tacc gtaccttttt	tgccctgaag	ggcctcacca	ccagccgcgg	ggagccggtc	120
caggcg	gtgt acgggtttgc	caagagcctt	ttgaaggcgc	taagggaaga	cggggatgtg	180
gtgatc	gtgg tgtttgacgc	caaggccccc	tccttccgcc	accagaccta	cgaggcctac	240
aaggcg	gggc gggctcccac	ccccgaggac	tttccccggc	agcttgccct	tatcaaggag	300
atggtg	gacc ttttgggcct	ggagcgcctc	gaggtgccgg	gctttgaagc	ggatgacgtc	360

420

ctggctaccc tggccaagaa ggcggaaaag gaaggctacg aagtgcgcat cctcaccgcg

480 gaccgggacc tttaccagct tctttcggag cgaatctcca tccttcaccc ggagggttac 540 ctgatcaccc cggagtggct ttgggagaag tatgggctta agccttccca gtgggtggac taccgggcct tggccgggga cccttccgac aacatccccg gcgtgaaggg catcggggag 600 660 aagacggcgg ccaagctgat ccgggagtgg ggaagcctgg aaaaccttct taagcacctg gaacaggtga aacctgcctc cgtgcgggag aagatcctta gccacatgga ggacctcaag 720 ctatccctgg agctatcccg ggtgcacacg gacttgctcc ttcaggtgga cttcgcccgg 780 840 cgccgggagc cggaccggga ggggcttaag gcctttttgg agaggctgga gttcggaagc 900 ctectecacg agtteggeet gttggaaage ceggtggegg eggaggaage teeetggeeg 960 cccccgagg gagcettegt ggggtacgtt ctttcccgcc ccgagcccat gtgggcggag 1020 ettaaegeet tggeegeege etgggaggga agggtttaee gggeggagga teeettggag 1080 geettgeggg ggettgggga ggtgaggggg ettttggeea aggaeetgge ggtgetggee etgagggaag ggattgeeet ggeaceggge gaegaeeeea tgeteetege etaeeteetg 1140 1200 gatcetteca acacegeece egaaggggta geceggeget acggggggga gtggacegag gaggcggggg aaagggcgct gctttccgaa aggctttacg ccgccctcct ggagcggctt 1260 aagggggagg agaggettet ttggetttac gaggaggtgg aaaageeeet ttegegggte 1320 1380 ctggcccaca tggaggccac gggggtacgg ttggatgtgg cctacttaaa ggccctttcc ctggaggtgg aggcggagat aaggcgcttc gaggaggagg tccaccgcct ggccgggcat 1440 1500 cctttcaacc tgaactcccg ggaccagctg gaaagggtca tctttgacga gcttgggctt 1560 ecegecateg geaagaegga gaagaeggge aagegeteea ecagegeege egttttggag gcettgeggg aggeteatee categtggae egeateette agtaceggga gettteeaag 1620 ctcaagggaa cctacatega tecettgeet geeetggtee acceeaagae gaacegeete 1680 cacaccegtt tcaaccagac ggccaccgcc acggggaggc ttagcagctc ggatcctaat 1740 ctgcaaaata tccccgtgcg cacccctttg ggccagcgga tccgccgggc cttcgtggcc 1800 gaggagggt ggaggctggt ggttttggac tacagccaga ttgagctcag ggtcctggcg 1860 cacctttccg gggacgagaa cctaatccgg gtcttccagg agggccagga catccacacc 1920 cagacggcca gctggatgtt cggcgtgccc ccagaggccg tggattccct gatgcgccgg 1980 gcggccaaga ccatcaactt cggcgtcctc tacggcatgt ccgcccaccg gctttcggga 2040 gagctggcca tcccctacga ggaggcggtg gccttcatcg agcggtattt ccagagctac 2100 cccaaggtgc gggcctggat tgagaaaacc ctggcggaag gacgggaacg gggctatgtg 2160 gaaaccctct ttggccgccg gcgctacgtg cccgacttgg cttcccgggt gaagagcatc 2220 cgggaggcag cggagcgcat ggccttcaac atgccggtcc aggggaccgc cgcggatttg 2280 atgaaactgg ccatggtgaa gctctttccc aggcttcagg agctgggggc caggatgctt 2340

ttgcaggtgc acgacgaact ggtcctcgag gctcccaagg agcaagcgga ggaagtcgcc 2400

caggaggcca agcggaccat ggaggaggtg tggcccctga aggtgccctt ggaggtggaa 2460

gtgggcatcg gggaggactg gctttccgcc aaggcctag 2499

<210> 254

<211> 832

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 254

Met Glu Phe Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu Leu Val 1 5 10 15

Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu Lys Gly Leu 20 25 30

Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe Ala Lys 35 40 45

Ser Leu Leu Lys Ala Leu Arg Glu Asp Gly Asp Val Val Ile Val Val 50 60

Phe Asp Ala Lys Ala Pro Ser Phe Arg His Gln Thr Tyr Glu Ala Tyr 65 70 75 80

Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln Leu Ala 85 90 95

Leu Ile Lys Glu Met Val Asp Leu Leu Gly Leu Glu Arg Leu Glu Val 100 105 110

Pro Gly Phe Glu Ala Asp Asp Val Leu Ala Thr Leu Ala Lys Lys Ala 115 120 125

Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Arg Asp Leu 130 140

Tyr Gln Leu Leu Ser Glu Arg Ile Ser Ile Leu His Pro Glu Gly Tyr

Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly Leu Lys Pro Ser 165 170 175

Gln Trp Val Asp Tyr Arg Ala Leu Ala Gly Asp Pro Ser Asp Asn Ile 180 185 190

Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Ala Lys Leu Ile Arg 195 200 205

Glu Trp Gly Ser Leu Glu Asn Leu Leu Lys His Leu Glu Gln Val Lys 210 215 220

Pro Ala Ser Val Arg Glu Lys Ile Leu Ser His Met Glu Asp Leu Lys 225 230 235 240

Leu Ser Leu Glu Leu Ser Arg Val His Thr Asp Leu Leu Gln Val 245 250 255

Asp Phe Ala Arg Arg Glu Pro Asp Arg Glu Gly Leu Lys Ala Phe 260 265 270

Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu 275 280 285

Glu Ser Pro Val Ala Ala Glu Glu Ala Pro Trp Pro Pro Pro Glu Gly 290 295 300

Ala Phe Val Gly Tyr Val Leu Ser Arg Pro Glu Pro Met Trp Ala Glu 305 310 315 320

Leu Asn Ala Leu Ala Ala Trp Glu Gly Arg Val Tyr Arg Ala Glu 325 330 335

Asp Pro Leu Glu Ala Leu Arg Gly Leu Gly Glu Val Arg Gly Leu Leu 340 345 350

Ala Lys Asp Leu Ala Val Leu Ala Leu Arg Glu Gly Ile Ala Leu Ala 355 360 365

Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn 370 380

Thr Ala Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu 385 390 395 400

Glu Ala Gly Glu Arg Ala Leu Leu Ser Glu Arg Leu Tyr Ala Ala Leu 405 Leu Glu Arg Leu Lys Gly Glu Glu Arg Leu Trp Leu Tyr Glu Glu 420 Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Lys Ala Leu Ser Leu Glu Val Glu Ala Glu Ile Arg Arg Phe Glu Glu Val His Arg Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Ile Phe Asp 485 Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro Ile Val Asp Arg Ile Leu Gln Tyr Arg Glu Leu Ser Lys Leu Lys Gly Thr Tyr Ile Asp Pro Leu Pro Ala Leu Val His Pro Lys Thr Asn Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln 580 585 590 Arg Ile Arg Arg Ala Phe Val Ala Glu Glu Gly Trp Arg Leu Val Val 595 600 605 Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly 610 Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Gln Asp Ile His Thr , 630 640 Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu Ala Val Asp Ser

Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr Gly 660 665 670

Met Ser Ala His Arg Leu Ser Gly Glu Leu Ala Ile Pro Tyr Glu Glu 675 680 685

Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Tyr Pro Lys Val Arg 690 695 700

Ala Trp Ile Glu Lys Thr Leu Ala Glu Gly Arg Glu Arg Gly Tyr Val 705 710 715 720

Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp Leu Ala Ser Arg 725 730 735

Val Lys Ser Ile Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met Pro $740 \hspace{1.5cm} 745 \hspace{1.5cm} 750$ 

Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys Leu 755 760 765

Phe Pro Arg Leu Gln Glu Leu Gly Ala Arg Met Leu Leu Gln Val His 770 780

Asp Glu Leu Val Leu Glu Ala Pro Lys Glu Gln Ala Glu Glu Val Ala 785 790 795 800

Gln Glu Ala Lys Arg Thr Met Glu Glu Val Trp Pro Leu Lys Val Pro 805 810 815

Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys Ala 820 825 830

<210> 255

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 255

cgatctcctc ggccacctcc

<210>	256							
<211>	20							
<212>	DNA							
<213>	Arti	ificial	Sequ	uence				
<220>								
<223>	Synt	hetic						
<400> ggcggtg	256 gccc	tggacgg	ggca					20
<210>	257							
<211>	20							
<212>	DNA							
<213>	Arti	ficial	Sequ	lence				
<220>								
<223>	Synt	hetic						
<400>	257	gtggaco	rtaa					20
ccagect	-9	geggaet	cga					20
<210>	258							
<211>	2505	5						
<212>	DNA							
<213>	Ther	rmus aqı	uatio	cus				
<400> atgaatt	258 cgg	ggatgct	gcc	cctctttgag	cccaagggcc	gggtcctcct	ggtggacggc	60
caccac	ctgg	cctacco	gcac	cttccacgcc	ctgaagggcc	tcaccaccag	ccggggggag	120
ccggtg	cagg	cggtcta	acgg	cttcgccaag	agcctcctca	aggccctcaa	ggaggacggg	180
gacgcgg	gtga	tcgtggt	ctt	tgacgccaag	gcccctcct	tccgccacga	ggcctacggg	240
gggtaca	aagg	cgggccg	gggc	ccccacgccg	gaggactttc	cccggcaact	cgccctcatc	300
aaggago	ctgg	tggacct	cct	ggggctggcg	cgcctcgagg	tcccgggcta	cgaggcggac	360
gacgtco	ctgg	ccagcct	ggc	caagaaggcg	gaaaaggagg	gctacgaggt	ccgcatcctc	420

480

accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag

gggtacetca teaceegge etggetttgg gaaaagtacg geetgaggee egaceagtgg 540 600 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 660 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege accgaeetge eeetggaggt ggaettegee 780 840 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 900 agectectee aegagttegg cettetggaa ageceeaagg eeetggagga ggeeeeetgg cccccgccgg aaggggcett cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 1020 gatettetgg ceetggeege egecaggggg ggeegggtee acegggeece egageettat 1080 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1140 geoetgaggg aaggeettgg cetecegeee ggegaegaee eeatgeteet egeetaeete ctggaccctt ccaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggagegggc egecetttee gagaggetet tegecaacet gtgggggagg 1260 cttgagggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc acatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 teeetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1500 ettecegeca teggeaagae ggagaagaee ggeaageget ceaceagege egeegteetg 1560 gaggccctcc gcgaggccca ccccatcgtg gagaagatcc tgcagtaccg ggagctcacc 1620 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 1800 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860 1920 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac 1980 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 2040 egggeggeea agaceateaa etteggggte etetaeggea tgteggeeca eegeetetee caggagetag ceatecetta egaggaggee caggeettea ttgagegeta ettteagage 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tetteggeeg eegeegetae gtgeeagace tagaggeeeg ggtgaagage 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340

ctcctt	cagg	tcca	caac	ga go	ctggt	ccto	gag	gcco	ccaa	aaga	agagg	ggc g	ggagg	gccgtg
gcccgg	ctgg	ccaa	ggag	gt ca	atgga	*gggg	ggtg	gtato	ccc	tgg	ccgt	gcc d	cctgg	gaggtg
gaggtg	ggga	tagg	ggag	ga ct	ggct	cctco	gc	caagg	gagt	gata	ag			
<210>	259													
<211>	833				•									
<212>	PRT													
<213>	Ther	mus a	aquat	cicus	5									
<400>	259													
Met Ası	n Ser	Gly	Met 5	Leu	Pro	Leu	Phe	Glu 10	Pro	Lys	Gly	Arg	Val 15	Leu
Leu Va	l Asp	Gly 20	His	His	Leu	Ala	Tyr 25	Arg	Thr	Phe	His	Ala 30	Leu	Lys
Clar I or	. ሞb s		Cox	7 ~~~	<b>C1</b>	G1	Dwa	17a l	<b>C</b> 1 n	71.	170 J	Т	<b>G</b> 1	Dh o
Gly Le	35	1111	ser	Arg	GIY	40	PIO	Val	GIII	Ala	45	TYL	GIY	Pne
Ala Ly:	s Ser	Leu	Leu	Lys	Ala	Leu	Lys	Glu	qzA	Gly	Asp	Ala	۷al	Ile
50				-	55		-		•	60	-			
Val Val	l Phe	Asp	Ala		Ala	Pro	Ser	Phe		His	Glu	Ala	Tyr	–
65				70					75					80
Gly Ty:	r Lys	Ala	Gly 85	Arg	Ala	Pro	Thr	Pro 90	Glu	Asp	Phe	Pro	Arg 95	Gln
			05					50					,,	
Leu Ala	a Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Leu	Ala 110	Arg	Leu
Glu Va	l Pro 115	_	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
T 7.1.	- 01	T	<b>a</b> 1	<b>01</b>	<b></b>	<b>a</b> 1	77 - J	3	<b>-1</b> -	<b>T</b>	m)	27 -	2	<b>.</b>
Lys Ala		гуз	GIU	GIY	135	GIU	vai	arg	тте	140	inr	АТА	Asp	rÀz
Asp Le	ı Tvr	Gln	Leu	Leu	Ser	Asp	Arg	Ile	His	Val	Leu	His	Pro	Glu
145	1-			150	- <b>-</b>	<b>F</b>			155					160
Gly Ty:	r Leu	·Ile		Pro	Ala	Trp	Leu		Glu	Lys	Tyr	Gly		Arg
			165					170					175	

Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu
Leu	Ala	Lys 355	Asp	Leu	Ser	Val	Leu 360	Ala	Leu	Arg	Glu	Gly 365	Leu	Gly	Leu
Pro	Pro 370	Gly	Asp	Asp	Pro	Met 375	Leu	Leu	Ala	Tyr	Leu 380	Leū̇́	Asp	Pro	Ser
Asn 385	Thr	Thr	Pro	Glu	Gly 390	Val	Ala	Arg	Arg	Tyr 395	Gly	Gly	Glu	Trp	Thr 400
Glu	Glu	Ala	Gly	Glu 405	Arg	Ala	Ala	Leu	Ser 410	Glu	Arg	Leu	Phe	Ala 415	Asn
Leu	Trp	Gly	Arg 420	Leu	Glu	Gly	Glu	Glu 425	Arg	Leu	Leu	Trp	Leu 430	Tyr	Arg

Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys 500 505 Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525 Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr

675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu

<210> 260

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 260 caggaggagc tcgttgtgga cctgga

<210> 261

<211> 836

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 261

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Phe Ala Leu 20 25 30

Lys Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly 35 40 45

Phe Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Tyr Lys Ala 50 55 60

Val Phe Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala 65 70 75 80

Tyr Glu Ala Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro 85 90 95

Arg Gln Leu Ala Leu Ile Lys Glu Leu Val Asp Leu Leu Gly Phe Thr 100 105 110

Arg Leu Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Thr Leu 115 120 125

Ala Lys Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala 130 135 140

Asp Arg Asp Leu Tyr Gln Leu Val Ser Asp Arg Val Ala Val Leu His 145 150 155 160

Pro Glu Gly His Leu Ile Thr Pro Glu Trp Leu Trp Glu Lys Tyr Gly 165 170 175

Leu Arg Pro Glu Gln Trp Val Asp Phe Arg Ala Leu Val Gly Asp Pro 180 185 190

Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Asp	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu ·	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Asp 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp 405	Ala	Ala	His	Arg	Ala 410	Leu	Leu	Ser	Glu	Arg 415	Leu
His	Arg	Asn	Leu 420	Leu	Lys	Arg	Leu	Glu 425	Gly	Glu	Glu	Lys	Leu 430	Leu	Trp
Leu	Tyr	His 435	Glu	Val	Glu	Lys	Pro 440	Leu	Ser	Arg	Val	Leu 445	Ala	His	Met

515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 530 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 545 550 555 560

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp 595 600 605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 615 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 635

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe

690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp 725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 780

Leu Gln Val His Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly 835

<210> 262

<211> 2511

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 262

atgaatteeg aggegatget teegetettt gaacecaaag geegggteet eetggtggae 60 ggeeaceace tggeetaeeg cacettette geeetgaagg geeteaceac gageeggge 120 gaaceggtge aggeggteta eggettegee aagageetee teaaggeeet gaaggaggae 180 gggtacaagg eegtettegt ggtetttgae geeaaggeee eeteetteeg ceaegaggee 240

300 tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc 360 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 420 geggaegaeg ttetegeeae cetggeeaag aaggeggaaa aggagggta egaggtgege atecteaceg cegacegega cetetaceaa etegteteeg acegegtege egtecteeae 480 cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag 540 600 cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg 720 gaagacetea ggeteteett ggagetetee egggtgegea eegaceteee eetggaggtg 780 840 gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg 900 gagtteggea geeteeteea egagttegge eteetggagg eeeeegeeee eetggaggag gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc 960 atgtgggcgg agcttaaagc cctggccgcc tgcagggacg gccgggtgca ccgggcagca 1020 gaccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc 1080 1140 geogtettgg cetegaggga ggggetagae etegtgeeeg gggaegaeee eatgeteete gectacetee tggacecete caacaceace eeegagggg tggegeggeg etacgggggg 1200 gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc 1260 cttaagcgcc tcgaggggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1320 1380 ctctcccggg tcctggccca catggaggcc accggggtac ggcgggacgt ggcctacctt caggecettt eeetggaget tgeggaggag ateegeegee tegaggagga ggtetteege 1440 1500 ttggcgggcc accccttcaa cctcaactcc cgggaccagc tggaaagggt gctctttgac gagettagge ttecegeett ggggaagaeg caaaagaeag geaagegete caecagegee 1560 geggtgetgg aggecetacg ggaggeecac cecategtgg agaagateet eeageacegg 1620 gageteacca ageteaagaa cacetaegtg gacecettee caageetegt ceaceegagg 1680 acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc 1740 teegaceeca acetgeagaa cateeeegte egeaceeeet tgggeeagag gateegeegg 1800 gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc 1860 cgcgtcctcg cccacctctc cggggacgaa aacctgatca gggtcttcca ggaggggaag 1920 gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccggaggc cgtggacccc 1980 ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat 2040 aggetetece aggagettge catecectae gaggaggegg tggeetttat agagegetae 2100

2160 ttccaaagct tccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgacct caacgcccgg 2220 gtgaagageg teagggagge egeggagege atggeettea acatgeeegt eeagggeace 2280 gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg 2340 gcccgcatgc tcctccaggt ccacaacgag ctcctcctgg aggcccccca agcgcgggcc 2400 gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccgtgccc 2460 ctggaggtgg aggtggggat gggggaggac tggctttccg ccaagggtta g 2511 <210> 263 <211> 50 <212> DNA <213> Artificial Sequence <220> <223> Synthetic <400> tctagaggat ctatcagtgg tggtggtggt ggtgctcctt ggcggagagc 50 <210> 264 <211> 58 <212> DNA <213> Artificial Sequence <220> <223> Synthetic <400> 264 tgcctgcagg tcgacgctag ctagtggtgg tggtggttggt gacccttggc ggaaagcc 58 <210> 265 <211> 2517 <212> DNA <213> Artificial Sequence

<220>

## <223> Synthetic

265 <400> atgaattegg ggatgetgee cetetttgag cecaagggee gggteeteet ggtggaegge 60 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 180 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg gacgcggtga tcgtggtctt tgacgccaag gcccctcct tccgccacga ggcctacggg 240 gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae 360 gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 gggtacetea teaceeegge etggetttgg gaaaagtaeg geetgaggee egaceagtgg 540 gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 720 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg aageteteet gggaeetgge eaaggtgege aeegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agecteetee aegagttegg cettetggaa ageceeaagg ceetggagga ggeeeeetgg 900 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc 960 gatettetgg ceetggeege egecaggggg ggeegggtee acegggeece egageettat 1020 aaagccctca gggacctgaa ggaggcgcgg gggcttctcg ccaaagacct gagcgttctg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 ctggaccctt ccaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gtgggggagg 1260 cttgaggggg aggagaggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc acatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 cacccettca aceteaacte cegggaccag etggaaaggg teetetttga egagetaggg 1500 cttcccgcca tcggcaagac ggagaagacc ggcaagcgct ccaccagcgc cgccgtcctg 1560 gaggecetec gegaggeeea ecceategtg gagaagatee tgeagtaceg ggageteace 1620 aagctgaaga gcacctacat tgaccccttg ccggacctca tccaccccag gacgggccgc 1680 ctccacaccc gcttcaacca gacggccacg gccacgggca ggctaagtag ctccgatccc 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 qccqaqqaqq qqtqqctatt qqtqqccctq qactataqcc aqataqaqct caqqqtgctg 1860 1920 gcccacctct ccggcgacga gaacctgatc cgggtcttcc aggaggggcg ggacatccac acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 2040 egggeggeca agaccateaa etteggggte etetaeggea tgteggecea eegeetetee 2100 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc 2220 gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 2517 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac

<210> 266

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 266

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys 20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln

Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Leu	Ala 110	Arg	Leu

- Glu Val Pro Gly Tyr Glu Ala Asp Asp Val Leu Ala Ser Leu Ala Lys 115 120 125
- Lys Ala Glu Lys Glu Gly Tyr Glu Val Arg Ile Leu Thr Ala Asp Lys 130 135 140
- Asp Leu Tyr Gln Leu Leu Ser Asp Arg Ile His Val Leu His Pro Glu 145 150 155 160
- Gly Tyr Leu Ile Thr Pro Ala Trp Leu Trp Glu Lys Tyr Gly Leu Arg 165 170 175
- Pro Asp Gln Trp Ala Asp Tyr Arg Ala Leu Thr Gly Asp Glu Ser Asp 180 185 190
- Asn Leu Pro Gly Val Lys Gly Ile Gly Glu Lys Thr Ala Arg Lys Leu 195 200 205
- Leu Glu Glu Trp Gly Ser Leu Glu Ala Leu Leu Lys Asn Leu Asp Arg 210 215 220
- Leu Lys Pro Ala Ile Arg Glu Lys Ile Leu Ala His Met Asp Asp Leu 225 230 235 240
- Lys Leu Ser Trp Asp Leu Ala Lys Val Arg Thr Asp Leu Pro Leu Glu 245 250 255
- Val Asp Phe Ala Lys Arg Arg Glu Pro Asp Arg Glu Arg Leu Arg Ala 260 265 270
- Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu 275 280 285
- Leu Glu Ser Pro Lys Ala Leu Glu Glu Ala Pro Trp Pro Pro Pro Glu 290 295 300
- Gly Ala Phe Val Gly Phe Val Leu Ser Arg Lys Glu Pro Met Trp Ala 305 310 315 320
- Asp Leu Leu Ala Leu Ala Ala Ala Arg Gly Gly Arg Val His Arg Ala 325 330 335

Pro Glu Pro Tyr Lys Ala Leu Arg Asp Leu Lys Glu Ala Arg Gly Leu 345 35Õ 340 Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn Leu Trp Gly Arg Leu Glu Glu Glu Glu Arg Leu Leu Trp Leu Tyr Arg 420 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys 500 505 Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 560 Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val 595 600 605

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp
645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His

<210> 267

<211> 2526

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 267 60 atgaatteeg aggegatget teegetettt gaacceaaag geegggteet eetggtggae 120 ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac 180 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240 tacgaggcct acaaggcggg gagggccccg acccccgagg acttcccccg gcagctcgcc 300 360 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag geggaegaeg ttetegeeae eetggeeaag aaggeggaaa aggaggggta egaggtgege 420 atceteaceg cegacegega cetetaceaa etegteteeg acegegtege egtectecae 480 540 ecegagggee aceteateae eceggagtgg etttgggaga agtaeggeet eaggeeggag cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag 600 ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg 720 gaagacetea ggeteteett ggagetetee egggtgegea eegaceteee eetggaggtg 780 gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg 840 gagtteggea geeteeteea egagttegge eteetggagg eeeeegeeee eetggaggag 900 gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc 960 atgtgggcgg agettaaage eetggeegee tgeagggaeg geegggtgea eegggeagea 1020 gaccccttgg cggggctaaa ggacctcaag gaggtccggg gcctcctcgc caaggacctc 1080 gccgtcttgg cctcgaggga ggggctagac ctcgtgcccg gggacgaccc catgctcctc 1140 gcctacctcc tggacccctc caacaccacc cccgaggggg tggcgcggcg ctacggggg 1200 gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc 1260 cttaagcgcc tcgaggggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1320

```
ctctcccggg tcctggccca catggaggcc accggggtac ggcgggacgt ggcctacctt
                                                                     1380
caggcccttt ccctggagct tgcggaggag atccgccgcc tcgaggagga ggtcttccgc
                                                                     1440
ttggcgggcc acccettcaa cetcaactee egggaceage tggaaagggt getetttgae
                                                                     1500
gagettagge ttecegeett ggggaagaeg caaaagaeaq geaagegete caceagegee
                                                                     1560
gcggtgctgg aggccctacg ggaggcccac cccatcgtgg agaagatcct ccagcaccgg
                                                                     1620
gageteacca ageteaagaa cacetaegtg gacecette caageetegt ceaceegagg
                                                                     1680
acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc
                                                                     1740
tecgacecca acetgeagaa cateceegte egeaceceet tgggeeagag gateegeegg
                                                                     1800
gccttcgtgg ccgaggcggg ttgggcgttg gtggccctgg actatagcca gatagagctc
                                                                     1860
egegteeteg eccaectete eggggaegaa aacetgatea gggtetteea ggaggggaag
                                                                     1920
gacatccaca cccagaccgc aagetggatg ttcggcgtcc ccccggaggc cgtggacccc
                                                                     1980
ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccqcccat
                                                                     2040
aggetetece aggagettge catecectae gaggaggegg tggeetttat agagegetae
                                                                     2100
ttccaaagct tccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag
                                                                     2160
cggggctacg tggaaaccct cttcggaaga aggcgctacg tgcccgacct caacgcccgg
                                                                     2220
gtgaagageg teagggagge egeggagege atggeettea acatgeeegt eeagggeace
                                                                     2280
gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg
                                                                     2340
gcccgcatgc tcctccaggt ccacaacgag ctcctcctgg aggcccccca agcgcgggcc
                                                                     2400
gaggaggtgg cggctttggc caaggaggcc atggagaagg cctatcccct cgccqtqccc
                                                                     2460
ctggaggtgg aggtggggat gggggaggac tggctttccg ccaagggtca ccaccaccac
                                                                     2520
caccac
                                                                     2526
```

<210> 268

<211> 842

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 268

Met Asn Ser Glu Ala Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val 1 5 10 15

Leu	Leu	Val	Asp 20	Gly	His	His	Leu	A1a 25	Tyr	Arg	Thr	Phe	Phe 30	Ala	Leu
Lys	Gly	Leu 35	Thr	Thr	Ser	Arg	Gly 40	Glu	Pro	Val	Gln	Ala 45	Val	Tyr	Gly
Phe	Ala 50	Lys	Ser	Leu	Leu	Lys 55	Ala	Leu	Lys	Glu	Asp 60	Gly	Tyr	Lys	Ala
Val 65	Phe	Val	Val	Phe	Asp 70	Ala	Lys	Ala	Pro	Ser 75	Phe	Arg	His	Glu	Ala 80
Tyr	Glu	Ala	Tyr	Lys 85	Ala	Gly	Arg	Ala	Pro 90	Thr	Pro	Glu	Asp	Phe 95	Pro
Arg	Gln	Leu	Ala 100	Leu	Ile	Lys	Glu	Leu 105	Val	Asp	Leu	Leu	Gly 110	Phe	Thr
Arg	Leu	Glu 115	Val	Pro	Gly	Tyr	Glu 120	Ala	Asp	Asp	Val	Leu 125	Ala	Thr	Leu
Ala	Lys 130	Lys	Ala	Glu	Lys	Glu 135	Gly	Tyr	Glu	Val	Arg 140	Ile	Leu	Thr	Ala
Asp 145	Arg	Asp	Leu	Tyr	Gln 150	Leu	Val	Ser	Asp	Arg 155	Val	Ala	Val	Leu	His 160
Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly

Leu Arg Ala Phe Leu Glu Arg Leu Glu Phe Gly Ser Leu Leu His Glu Phe Gly Leu Leu Glu Ala Pro Ala Pro Leu Glu Glu Ala Pro Trp Pro 295 Pro Pro Glu Gly Ala Phe Val Gly Phe Val Leu Ser Arg Pro Glu Pro Met Trp Ala Glu Leu Lys Ala Leu Ala Ala Cys Arg Asp Gly Arg Val His Arg Ala Ala Asp Pro Leu Ala Gly Leu Lys Asp Leu Lys Glu Val 345 Arg Gly Leu Leu Ala Lys Asp Leu Ala Val Leu Ala Ser Arg Glu Gly 355 360 Leu Asp Leu Val Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu 370 375 Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly 385 390 Glu Trp Thr Glu Asp Ala Ala His Arg Ala Leu Leu Ser Glu Arg Leu His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp 420 Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met 435 440 Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Val Phe Arg Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu

- Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 530 540
- Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 545 550 555 560
- Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 570 575
- Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 590
- Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp 595 600 605
- Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 615 620
- His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 635 640
- Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650 655
- Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly 660 665 670
- Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685
- Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 695 700
- Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys
  705 710 715 720
- Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Arg Tyr Val Pro Asp 725 730 735
- Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750
- Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Leu Gln Val His Asn Glu Leu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 810 Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 825 820 Ser Ala Lys Gly His His His His His <210> 269 <211> 30 DNA <212> <213> Artificial Sequence <220> <223> Synthetic <400> 269 gccgccaggg gcggccgcgt ccaccgggcc 30 <210> 270 <211> 31 <212> DNA <213> Artificial Sequence <220> <223> Synthetic <400> 270 gcctgcaggg gcggccgcgt gcaccggggc a 31 <210> 271 <211> 26 <212> DNA

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu

780

775

## <220> <223> Synthetic <400> 271 26 ctcctggacc cttcgaacac cacccc <210> 272 <211> 23 <212> DNA <213> Artificial Sequence <220> <223> Synthetic <400> 272 gtcctggccc atatggaggc cac 23 <210> 273 <211> 2526 <212> DNA <213> Artificial Sequence <220> <223> Synthetic <400> atgaatteeg aggegatget teegetettt gaacccaaag geegggteet eetggtggae 60 ggccaccacc tggcctaccg caccttcttc gccctgaagg gcctcaccac gagccggggc 120 gaaccggtgc aggcggtcta cggcttcgcc aagagcctcc tcaaggccct gaaggaggac 180 gggtacaagg ccgtcttcgt ggtctttgac gccaaggccc cctccttccg ccacgaggcc 240 tacgaggeet acaaggeggg gagggeeeeg acceeegagg actteeeeeg geagetegee 300 ctcatcaagg agctggtgga cctcctgggg tttacccgcc tcgaggtccc cggctacgag 360 gcggacgacg ttctcgccac cctggccaag aaggcggaaa aggaggggta cgaggtgcgc 420 atceteaceg cegacegega cetetaceaa etegteteeg acegegtege egteeteeae 480

<213> Artificial Sequence

540

cccgagggcc acctcatcac cccggagtgg ctttgggaga agtacggcct caggccggag

cagtgggtgg acttccgcgc cctcgtgggg gacccctccg acaacctccc cggggtcaag 600 ggcatcgggg agaagaccgc cctcaagctc ctcaaggagt ggggaagcct ggaaaacctc 660 720 ctcaagaacc tggaccgggt aaagccagaa aacgtccggg agaagatcaa ggcccacctg gaagacetea ggeteteett ggagetetee egggtgegea eegaceteee eetggaggtg 780 840 gacctcgccc aggggcggga gcccgaccgg gaggggctta gggccttcct ggagaggctg gagtteggea geeteeteea egagttegge eteetggagg eeceegeeee eetggaggag 900 960 gccccctggc ccccgccgga aggggccttc gtgggcttcg tcctctcccg ccccgagccc atgtgggcgg agcttaaagc cctggccgcc tgcaggggcg gccgcgtgca ccgggcagca 1020 gacccettgg eggggetaaa ggaccteaag gaggteeggg geeteetege caaggacete 1080 gccgtcttgg cctcgaggga ggggctagac ctcgtgcccg gggacgaccc catgctcctc 1140 gectacetee tggaceette gaacaceace ceegaggggg tggegeggeg etacgggggg 1200 1260 gagtggacgg aggacgccgc ccaccgggcc ctcctctcgg agaggctcca tcggaacctc cttaagcgcc tcgagggga ggagaagctc ctttggctct accacgaggt ggaaaagccc 1320 ctctcccggg tcctggccca tatggaggcc accggggtac ggcgggacgt ggcctacctt 1380 caggcccttt ccctggagct tgcggaggag atccgccgcc tcgaggagga ggtcttccgc 1440 1500 ttggcgggcc acccettcaa cetcaactee egggaceage tggaaagggt getetttgae gagettagge ttecegeett ggggaagaeg caaaagaeag geaagegete caceagegee 1560 geggtgetgg aggecetacg ggaggeceae cecategtgg agaagateet ceageaeegg 1620 gageteacca ageteaagaa cacetaegtg gaceeeetee caageetegt ceaceegagg 1680 acgggccgcc tccacacccg cttcaaccag acggccacgg ccacggggag gcttagtagc 1740 teegaceeca acetgeagaa cateecegte egcaceeect tgggeeagag gateegeegg 1800 gcettegtgg cegaggeggg ttgggegttg gtggccetgg actatageca gatagagete 1860 egegteeteg eccaectete eggggaegaa aacetgatea gggtetteea ggaggggaag 1920 gacatccaca cccagaccgc aagctggatg ttcggcgtcc ccccggaggc cgtggacccc 1980 ctgatgcgcc gggcggccaa gacggtgaac ttcggcgtcc tctacggcat gtccgcccat 2040 aggetetece aggagettge catecectae gaggaggegg tggeetttat agagegetae 2100 ttccaaagct tccccaaggt gcgggcctgg atagaaaaga ccctggagga ggggaggaag 2160 eggggetaeg tggaaaccet etteggaaga aggegetaeg tgeeegaeet caaegeeegg 2220 gtgaagagcg tcagggaggc cgcggagcgc atggccttca acatgcccgt ccagggcacc 2280 gccgccgacc tcatgaagct cgccatggtg aagctcttcc cccgcctccg ggagatgggg 2340 gcccgcatgc tcctccaggt ccacaacgag ctcctcctgg aggcccccca agcgcggcc 2400

gaggaggtgg		gg	cggct	ttgg	gc ca	aagga	aggco	ato	ggaga	aagg	ccta	atcco	cct o	gccg	gtgccc
ctgg	aggt	gg (	aggto	gggga	at go	gggga	aggad	tgg	gcttt	ccg	ccaa	agggt	ca d	ccaco	caccac
cacc	ac														
						•									
<210	> 2	274													
<211	> 8	342													
<212	> ]	PRT													
<213	> 1	Arti	ficia	al Se	equer	ıce									
<220	>														
<223	> 5	Synt:	hetio	2											
<400	> :	274													
Met	Asn	Ser	Glu	Ala	Met	Leu	Pro	Leu	Phe	Glu	Pro	Lys	Gly	Arg	Val
1				5					10					15	
Leu	Leu	Val	Asp	Glv	His	His	Leu	Ala	Tvr	Ara	Thr	Phe	Phe	Ala	Leu
			20	1				25	-1	3			30		
T ***	C1	T 011	The	The	Con	7 ~~	C1	<b>a</b> 1	Dwo	17a l	Cl.	710	7707	M+ ++4	G1
Lys	GIY	35	1111	1111	ser	Arg	40	GIU	PIO	Val	GIII	45	vai	ıyı	GIY
	Ala 50	Lys	Ser	Leu	Leu	Lys 55	Ala	Leu	Lys	Glu	Asp 60	Gly	Tyr	Lys	Ala
Val 65	Phe	Val	Val	Phe	Asp 70	Ala	Lys	Ala	Pro	Ser 75	Phe	Arg	His	Glu	Ala 80
					, •					,,,					
Tyr	Glu	Ala	Tyr		Ala	Gly	Arg		-	Thr	Pro	Glu	Asp	Phe	Pro
				85					90					95	
Arg	Gln	Leu	Ala	Leu	Ile	Lys	Glu	Leu	Val	Asp	Leu	Leu	Gly	Phe	Thr
			100					105					110		
Arg	Leu	Glu	Val	Pro	Gly	Tyr	Glu	Ala	gsA	qzA	Val	Leu	Ala	Thr	Leu
		115			•	•	120		_	•		125			
בות	Laza	Luc	λla	Glu	Larc	Gl.	Glv	Тиг	Cl.,	Val	ሽድα	Tle	Len	Thr	ח ה
Ala	130	пур	чта	GIU	пуs	135	сту	TYL	GIU	vaı	140	116	neu	TIIT	nia
_	_			-				_			<b></b> -			_	
Asp 145	Arg	Asp	Leu	Tyr	Gln 150	Leu	Val	Ser	Asp	Arg 155	Val	Ala	Val	Leu	His 160

Pro	Glu	Gly	His	Leu 165	Ile	Thr	Pro	Glu	Trp 170	Leu	Trp	Glu	Lys	Tyr 175	Gly
Leu	Arg	Pro	Glu 180	Gln	Trp	Val	Asp	Phe 185	Arg	Ala	Leu	Val	Gly 190	Asp	Pro
Ser	Asp	Asn 195	Leu	Pro	Gly	Val	Lys 200	Gly	Ile	Gly	Glu	Lys 205	Thr	Ala	Leu
Lys	Leu 210	Leu	Lys	Glu	Trp	Gly 215	Ser	Leu	Glu	Asn	Leu 220	Leu	Lys	Asn	Leu
Asp 225	Arg	Val	Lys	Pro	Glu 230	Asn	Val	Arg	Glu	Lys 235	Ile	Lys	Ala	His	Leu 240
Glu	Asp	Leu	Arg	Leu 245	Ser	Leu	Glu	Leu	Ser 250	Arg	Val	Arg	Thr	Asp 255	Leu
Pro	Leu	Glu	Val 260	Asp	Leu	Ala	Gln	Gly 265	Arg	Glu	Pro	Asp	Arg 270	Glu	Gly
Leu	Arg	Ala 275	Phe	Leu	Glu	Arg	Leu 280	Glu	Phe	Gly	Ser	Leu 285	Leu	His	Glu
Phe	Gly 290	Leu	Leu	Glu	Ala	Pro 295	Ala	Pro	Leu	Glu	Glu 300	Ala	Pro	Trp	Pro
Pro 305	Pro	Glu	Gly	Ala	Phe 310	Val	Gly	Phe	Val	Leu 315	Ser	Arg	Pro	Glu	Pro 320
Met	Trp	Ala	Glu	Leu 325	Lys	Ala	Leu	Ala	Ala 330	Cys	Arg	Gly	Gly	Arg 335	Val
His	Arg	Ala	Ala 340	Asp	Pro	Leu	Ala	Gly 345	Leu	Lys	Asp	Leu	Lys 350	Glu	Val
Arg	Gly	Leu 355	Leu	Ala	Lys	Asp	Leu 360	Ala	Val	Leu	Ala	Ser 365	Arg	Glu	Gly
Leu	Asp 370	Leu	Val	Pro	Gly	Asp 375	Asp	Pro	Met	Leu	Leu 380	Ala	Tyr	Leu	Leu
Asp 385	Pro	Ser	Asn	Thr	Thr 390	Pro	Glu	Gly	Val	Ala 395	Arg	Arg	Tyr	Gly	Gly 400
Glu	Trp	Thr	Glu	Asp	Ala	Ala	His	Arg	Ala	Leu	Leu	Ser	Glu	Arg	Leu

His Arg Asn Leu Leu Lys Arg Leu Glu Glu Glu Lys Leu Leu Trp 420 425 430

Leu Tyr His Glu Val Glu Lys Pro Leu Ser Arg Val Leu Ala His Met 435 440 445

Glu Ala Thr Gly Val Arg Arg Asp Val Ala Tyr Leu Gln Ala Leu Ser 450 460

Leu Glu Leu Ala Glu Glu Ile Arg Arg Leu Glu Glu Glu Val Phe Arg 465 470 475 480

Leu Ala Gly His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg
485 490 495

Val Leu Phe Asp Glu Leu Arg Leu Pro Ala Leu Gly Lys Thr Gln Lys 500 505 510

Thr Gly Lys Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu 515 520 525

Ala His Pro Ile Val Glu Lys Ile Leu Gln His Arg Glu Leu Thr Lys 530 540

Leu Lys Asn Thr Tyr Val Asp Pro Leu Pro Ser Leu Val His Pro Arg 545 550 555

Thr Gly Arg Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly 565 570 575

Arg Leu Ser Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr 580 585 590

Pro Leu Gly Gln Arg Ile Arg Arg Ala Phe Val Ala Glu Ala Gly Trp 595 600 605

Ala Leu Val Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala 610 620

His Leu Ser Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Lys 625 630 635

Asp Ile His Thr Gln Thr Ala Ser Trp Met Phe Gly Val Pro Pro Glu 645 650 655

Ala Val Asp Pro Leu Met Arg Arg Ala Ala Lys Thr Val Asn Phe Gly

660 665 670

Val Leu Tyr Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile 675 680 685

Pro Tyr Glu Glu Ala Val Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe 690 695 700

Pro Lys Val Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Lys 705 710 715 720

Arg Gly Tyr Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp
725 730 735

Leu Asn Ala Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala 740 745 750

Phe Asn Met Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala 755 760 765

Met Val Lys Leu Phe Pro Arg Leu Arg Glu Met Gly Ala Arg Met Leu 770 785

Leu Gln Val His Asn Glu Leu Leu Glu Ala Pro Gln Ala Arg Ala 785 790 795 800

Glu Glu Val Ala Ala Leu Ala Lys Glu Ala Met Glu Lys Ala Tyr Pro 805 810 815

Leu Ala Val Pro Leu Glu Val Glu Val Gly Met Gly Glu Asp Trp Leu 820 825 830

Ser Ala Lys Gly His His His His His His 835 840

<210> 275

<211> 2517

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 275

atgaattegg ggatgetgee eetetttgag cecaagggee gggteeteet ggtggaegge 120 caccacctgg cctaccgcac cttccacgcc ctgaagggcc tcaccaccag ccggggggag 180 ccggtgcagg cggtctacgg cttcgccaag agcctcctca aggccctcaa ggaggacggg 240 gacgeggtga tegtggtett tgacgecaag geceeteet teegecaega ggeetaeggg gggtacaagg cgggccgggc ccccacgccg gaggactttc cccggcaact cgccctcatc 300 360 aaggagetgg tggaceteet ggggetggeg egeetegagg teeegggeta egaggeggae gacgtcctgg ccagcctggc caagaaggcg gaaaaggagg gctacgaggt ccgcatcctc 420 accgccgaca aagaccttta ccagctcctt tccgaccgca tccacgtcct ccaccccgag 480 540 gggtacctca tcaccccggc ctggctttgg gaaaagtacg gcctgaggcc cgaccagtgg gccgactacc gggccctgac cggggacgag tccgacaacc ttcccggggt caagggcatc 600 ggggagaaga cggcgaggaa gcttctggag gagtggggga gcctggaagc cctcctcaag 660 aacctggacc ggctgaagcc cgccatccgg gagaagatcc tggcccacat ggacgatctg 720 aageteteet gggaeetgge caaggtgege acegaeetge eeetggaggt ggaettegee 780 aaaaggcggg agcccgaccg ggagaggctt agggcctttc tggagaggct tgagtttggc 840 agectectee aegagttegg cettetggaa ageceeaagg ceetggagga ggeeeeetgg 900 960 cccccgccgg aaggggcctt cgtgggcttt gtgctttccc gcaaggagcc catgtgggcc gatettetgg ceetggeege egecagggge ggeegegtee aeegggeece egageettat 1020 aaagccetca gggacetgaa ggaggegegg gggetteteg ecaaagaeet gagegttetg 1080 gccctgaggg aaggccttgg cctcccgccc ggcgacgacc ccatgctcct cgcctacctc 1140 ctggaccctt cgaacaccac ccccgagggg gtggcccggc gctacggcgg ggagtggacg 1200 gaggaggegg gggageggge egecetttee gagaggetet tegecaacet gtgggggagg 1260 cttgaggggg aggagggct cctttggctt taccgggagg tggagaggcc cctttccgct 1320 gtcctggccc atatggaggc cacgggggtg cgcctggacg tggcctatct cagggccttg 1380 tecetggagg tggeegagga gategeeege etegaggeeg aggtetteeg eetggeegge 1440 caccccttca acctcaactc ccgggaccag ctggaaaggg tcctctttga cgagctaggg 1500 ettecegeca teggeaagae ggagaagaee ggeaageget ceaceagege egeegteetg 1560 gaggeeetee gegaggeeea ceceategtg gagaagatee tgeagtaceg ggageteace 1620 aagetgaaga geacetaeat tgacecettg eeggacetea tecaceceag gaegggeege 1680 etccacacce gettcaacca gacggccacg gecacgggca ggctaagtag etccgatece 1740 aacctccaga acatccccgt ccgcaccccg cttgggcaga ggatccgccg ggccttcatc 1800 gccgaggagg ggtggctatt ggtggccctg gactatagcc agatagagct cagggtgctg 1860

60

geceaectet eeggegaega gaacetgate egggtettee aggaggggeg ggacateeae 1920 acggagaccg ccagctggat gttcggcgtc ccccgggagg ccgtggaccc cctgatgcgc 1980 cgggcggcca agaccatcaa cttcggggtc ctctacggca tgtcggccca ccgcctctcc 2040 caggagctag ccatccctta cgaggaggcc caggccttca ttgagcgcta ctttcagagc 2100 ttccccaagg tgcgggcctg gattgagaag accctggagg agggcaggag gcgggggtac 2160 2220 gtggagaccc tcttcggccg ccgccgctac gtgccagacc tagaggcccg ggtgaagagc gtgcgggagg cggccgagcg catggccttc aacatgcccg tccagggcac cgccgccgac 2280 ctcatgaagc tggctatggt gaagctcttc cccaggctgg aggaaatggg ggccaggatg 2340 ctccttcagg tccacaacga gctggtcctc gaggccccaa aagagagggc ggaggccgtg 2400 gcccggctgg ccaaggaggt catggagggg gtgtatcccc tggccgtgcc cctggaggtg 2460 gaggtgggga taggggagga ctggctctcc gccaaggagc accaccacca ccaccac 2517

<210> 276

<211> 839

<212> PRT

<213> Artificial Sequence

<220>

<223> Synthetic

<400> 276

Met Asn Ser Gly Met Leu Pro Leu Phe Glu Pro Lys Gly Arg Val Leu 1 5 10 15

Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe His Ala Leu Lys
20 25 30

Gly Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Ala Val Tyr Gly Phe 35 40 45

Ala Lys Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Asp Ala Val Ile 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Gly 65 70 75 80

Gly Tyr Lys Ala Gly Arg Ala Pro Thr Pro Glu Asp Phe Pro Arg Gln 85 90 95

Leu	Ala	Leu	Ile 100	Lys	Glu	Leu	Val	Asp 105	Leu	Leu	Gly	Leu	Ala 110	Arg	Leu
Glu	Val	Pro 115	Gly	Tyr	Glu	Ala	Asp 120	Asp	Val	Leu	Ala	Ser 125	Leu	Ala	Lys
Lys	Ala 130	Glu	Lys	Glu	Gly	Tyr 135	Glu	Val	Arg	Ile	Leu 140	Thr	Ala	Asp	Lys
Asp 145	Leu	Tyr	Gln	Leu	Leu 150	Ser	Asp	Arg	Ile	His 155	Val	Leu	His	Pro	Glu 160
Gly	Tyr	Leu	Ile	Thr 165	Pro	Ala	Trp	Leu	Trp 170	Glu	Lys	Tyr	Gly	Leu 175	Arg
Pro	Asp	Gln	Trp 180	Ala	Asp	Tyr	Arg	Ala 185	Leu	Thr	Gly	Asp	Glu 190	Ser	Asp
Asn	Leu	Pro 195	Gly	Val	Lys	Gly	Ile 200	Gly	Glu	Lys	Thr	Ala 205	Arg	Lys	Leu
Leu	Glu 210	Glu	Trp	Gly	Ser	Leu 215	Glu	Ala	Leu	Leu	Lys 220	Asn	Leu	Asp	Arg
Leu 225	Lys	Pro	Ala	Ile	Arg 230	Glu	Lys	Ile	Leu	Ala 235	His	Met	Asp	Asp	Leu 240
Lys	Leu	Ser	Trp	Asp 245	Leu	Ala	Lys	Val	Arg 250	Thr	Asp	Leu	Pro	Leu 255	Glu
Val	Asp	Phe	Ala 260	Lys	Arg	Arg	Glu	Pro 265	Asp	Arg	Glu	Arg	Leu 270	Arg	Ala
Phe	Leu	Glu 275	Arg	Leu	Glu	Phe	Gly 280	Ser	Leu	Leu	His	Glu 285	Phe	Gly	Leu
Leu	Glu 290	Ser	Pro	Lys	Ala	Leu 295	Glu	Glu	Ala	Pro	Trp 300	Pro	Pro	Pro	Glu
Gly 305	Ala	Phe	Val	Gly	Phe 310	Val	Leu	Ser	Arg	Lys 315	Glu	Pro	Met	Trp	Ala 320
Asp	Leu	Leu	Ala	Leu 325	Ala	Ala	Ala	Arg	Gly 330	Gly	Arg	Val	His	Arg 335	Ala
Pro	Glu	Pro	Tyr 340	Lys	Ala	Leu	Arg	Asp 345	Leu	Lys	Glu	Ala	Arg 350	Gly	Leu

Pro Pro Gly Asp Asp Pro Met Leu Leu Ala Tyr Leu Leu Asp Pro Ser Asn Thr Thr Pro Glu Gly Val Ala Arg Arg Tyr Gly Gly Glu Trp Thr 390 395 Glu Glu Ala Gly Glu Arg Ala Ala Leu Ser Glu Arg Leu Phe Ala Asn Leu Trp Gly Arg Leu Glu Gly Glu Glu Arg Leu Leu Trp Leu Tyr Arg 420 Glu Val Glu Arg Pro Leu Ser Ala Val Leu Ala His Met Glu Ala Thr 435 440 Gly Val Arg Leu Asp Val Ala Tyr Leu Arg Ala Leu Ser Leu Glu Val 450 455 Ala Glu Glu Ile Ala Arg Leu Glu Ala Glu Val Phe Arg Leu Ala Gly 465 470 His Pro Phe Asn Leu Asn Ser Arg Asp Gln Leu Glu Arg Val Leu Phe 485 Asp Glu Leu Gly Leu Pro Ala Ile Gly Lys Thr Glu Lys Thr Gly Lys

Leu Ala Lys Asp Leu Ser Val Leu Ala Leu Arg Glu Gly Leu Gly Leu

Arg Ser Thr Ser Ala Ala Val Leu Glu Ala Leu Arg Glu Ala His Pro 515 520 525

Ile Val Glu Lys Ile Leu Gln Tyr Arg Glu Leu Thr Lys Leu Lys Ser 530 540

Thr Tyr Ile Asp Pro Leu Pro Asp Leu Ile His Pro Arg Thr Gly Arg 545 550 555 560

Leu His Thr Arg Phe Asn Gln Thr Ala Thr Ala Thr Gly Arg Leu Ser 565 570 575

Ser Ser Asp Pro Asn Leu Gln Asn Ile Pro Val Arg Thr Pro Leu Gly 580 585 590

Gln Arg Ile Arg Arg Ala Phe Ile Ala Glu Glu Gly Trp Leu Leu Val

Ala Leu Asp Tyr Ser Gln Ile Glu Leu Arg Val Leu Ala His Leu Ser 610 615 620

Gly Asp Glu Asn Leu Ile Arg Val Phe Gln Glu Gly Arg Asp Ile His 625 630 635 640

Thr Glu Thr Ala Ser Trp Met Phe Gly Val Pro Arg Glu Ala Val Asp 645 650 655

Pro Leu Met Arg Arg Ala Ala Lys Thr Ile Asn Phe Gly Val Leu Tyr 660 665 670

Gly Met Ser Ala His Arg Leu Ser Gln Glu Leu Ala Ile Pro Tyr Glu 675 680 685

Glu Ala Gln Ala Phe Ile Glu Arg Tyr Phe Gln Ser Phe Pro Lys Val 690 695 700

Arg Ala Trp Ile Glu Lys Thr Leu Glu Glu Gly Arg Arg Gly Tyr 705 710 715 720

Val Glu Thr Leu Phe Gly Arg Arg Tyr Val Pro Asp Leu Glu Ala 725 730 735

Arg Val Lys Ser Val Arg Glu Ala Ala Glu Arg Met Ala Phe Asn Met 740 745 750

Pro Val Gln Gly Thr Ala Ala Asp Leu Met Lys Leu Ala Met Val Lys 755 760 765

Leu Phe Pro Arg Leu Glu Glu Met Gly Ala Arg Met Leu Leu Gln Val 770 780

His Asn Glu Leu Val Leu Glu Ala Pro Lys Glu Arg Ala Glu Ala Val 785 790 795 800

Ala Arg Leu Ala Lys Glu Val Met Glu Gly Val Tyr Pro Leu Ala Val 805 810 815

Pro Leu Glu Val Glu Val Gly Ile Gly Glu Asp Trp Leu Ser Ala Lys 820 825 830

Glu His His His His His His 835

<210>	211	
<211>	27	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gaggag	277 gegg ggeaceggge egeeett	27
<210>	270	
<211>		
<212>		
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ctttcc	278 gaga ggctccatcg gaacctgtgg gggagg	36
<210>	279	
<211>	36	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	279 gcca acctgcttaa gaggcttgag ggggag	36
223000	JJ	-
<210>	280	
<211>	27	
<212>	DNA	

<220>		
<223>	Synthetic	
<400> aggccc	280 cttt cccgggtcct ggcccat	27
<210>	281	
<211>	27	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> acgggg	281 gtgc gccgggacgt ggcctat	27
<210>	282	
<211>	27	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gtggcc	282 tatc tccaggcctt gtccctg	27
<210>	283	
<211>	27	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	283	

ttgtccctgg agcttgccga ggagatc

<210>	284	
<211>	27	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gccgagg	284 gaga teegeegeet egaggee	27
<210>	285	
<211>	27	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gcccgc	285 ctcg aggaggaggt cttccgc	27
<210>		
<211>		
<212>		
<213>	Artificial Sequence	
222		
<220>		
<223>		
<400> tttgac	286 gage taaggettee egecate	27
<210>	287	
<211>	27	
<212>	DNA	

7
7
7
7

<210>	291	
<211>	39	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	291 ccct tgccgagcct cgtccacccc aggacgggc	3 9
<210>	292	
<211>	33	
<212>		
<213>	Artificial Sequence	
<220>		
	Synthetic	
<400> ttcgcc	292 aacc tgcttgggag gcttgagggg gag	33
<210>		
<211>		
<212>		
<213>	Artificial Sequence	
-220-		
<220>	Complete	
<400>	Synthetic 293	
	gcca acctgtggaa gaggcttgag ggg	33
<210>	294	
<211>		
<212>	DNA	
	Artificial Sequence	
	······································	

<220>		
<223>	Synthetic	
<400> gcttgc	294 ggtc tgggtggcga tgtccttccc ctc	33
<210>	295	
<211>	33	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> catgtt	295 gaag gccatggcct ccgcggcctc cct	33
<210>	296	
<211>	30	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> caggag	296 gagc tcgttggcga cctggaggag	30
<210>	297	
<211>	45	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ggagcg	297 cttg cctgtcttct tcgtcttctt caaggcggga ggcct	45

<210>	298	
<211>	33	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gaggac	298 cagc tcgttggcga cctgaaggag cat	33
<210>	299	
<211>	33	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	299 cggg acatcgccac ggagaccgcc agc	33
3 3333		
<210>	300	
<211>	33	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> cagaac	300 atcc ccgtcgccac cccgcttggg cag	33
<210>	301	
<211>	33	
<212>	DNA	
<213>	Artificial Sequence	

<220>	
<223> Synthetic	
<400> 301 gggcttcccg ccatcaagaa gacggagaag acc	33
<210> 302	
<211> 39	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Synthetic	
<400> 302 ctagggette eegecateaa gaagaegeaa aagaeegge	39
<210> 303	
<211> 39	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Synthetic	
<400> 303 ccggggaaag tecteeteeg teteggeeeg geeegeett	39
<210> 304	
<211> 36	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Synthetic	
<400> 304 cgggacctcg aggcgcgtga accccaggag gtccac	36

```
<210> 305
<211> 18
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<400> 305
ctcctccacg agttcggc
                                                                    18
<210> 306
<211> 48
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<400> 306
accggtcttc ttcgtcttct tcaacttggg aagcctgagc tcgtcaaa
                                                                    48
<210> 307
<211> 33
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<400> 307
aagacgaaga agaccggtaa gcgctccacc agc
                                                                    33
<210> 308
<211> 52
<212> DNA
```

```
<220>
<223> Synthetic
<400> 308
gtcgactcta gatcagtggt ggtggtggtg gtgcttggcc gcccggcgca tc
                                                                            52
<210> 309
<211> 60
<212> DNA
<213> Artificial Sequence
<220>
<223>
      Synthetic
<220>
<221> modified_base
<222>
      (19)..(42)
<223> The bases in these positions within tH primer are 91% of the base shown and 3% each of the other 3 nucleotides.
<400> 309
ggagcgctta ccggtctttt gcgtcttctt gatcttggga agccttagct cgtcaaagag
                                                                            60
<210>
      310
<211>
      18
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<400> 310
ctcctccacg agttcggc
                                                                            18
<210> 311
<211>
       60
```

<212> DNA

```
<220>
<223> Synthetic
<220>
<221> modified_base
<222> (19)..(42)
<223> The bases at these positions within tH primer are 91% of the base
       shown and 3% each of the other 3 nucleotides.
<400> 311
caaaagaccg gtaagcgctc caccagcgcc gccgtcctgg aggccctccg cgaggcccac
                                                                     60
<210> 312
<211>
      52
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<400> 312
gtcgactcta gatcagtggt ggtggtggtg gtgcttggcc gcccggcgca tc
                                                                     52
<210> 313
<211>
      21
<212> DNA
<213> Artificial Sequence
<220>
<223> Synthetic
<400> 313
gtcggagggg tccccacga g
                                                                     21
<210> 314
```

<211> 17

<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
	314 attg tgagcgg	17
<210>	315	
<211>	75	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<220>		
<221>	modified_base	
<222>	(28)(59)	
<223>	The bases in these positions within tH primer are 91% of the b shown and 3% each of the other 3 nucleotides.	ase
<400> ctcgtg	315 gggg accetecga caaceteece ggggteaagg geategggga gaagaeegee	60
ctcaag	cttc tcaag	75
<210>	316	
<211>	23	
<212>	DNA .	
	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	316	

gtggcctcca tatgggccag gac

<210>	317	
<211>	36	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	317 ctcg aggcgcgtga accccaggag gtccac	36
055540	oreg aggegega acceedaggag gereac	,
<210>	318	
<211>	39	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ccgggg	318 aaag teeteeteeg teteggeeeg geeegeett	39
<210>		
<211>		
<212>		
<213>	Artificial Sequence	
222		
<220>		
<223>	Synthetic	
<400> gtcgga	319 ctcg tcaccggtca gggc	24
<210>	320	
<211>	75	
<211>	DNA	
<b>~</b> 4147	DIG	

<220>		
<223>	Synthetic	
<220>		
<221>	modified_base	
<222>	(28)(60)	
<223>	The bases in these positions within tH primer are 91% of the l shown and 3% each of the other 3 nucleotides.	base
	320 ggtg acgagtccga caaccttccc ggggtcaagg gcatcgggga gaggacggcg .	60
aggaag	cttc tggag	75
<210>	321	
<211>	33	
<212>	DNA	
<213>	Artificial Sequence	
	·	
<220>		
<223>	Synthetic	
	321 ctgg gagagggcgt gggccgacat gcc	33
<210>	322	
<211>	34	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> cttcca	322 gaac ctctttaaac ggctttccga gaag	34
<210>	323	
<211>	34	

<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> cttctc	323 ggaa agccgtttaa agaggttctg gaag	34
<210>	324	
<211>	31	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ccggtg	324 ggcc ggacgcagaa gacgggcaag c	31
<210>	325	
<211>	31	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gcttgc	325 ccgt cttctgcgtc cggcccaccg g	31
<210>	326	
<211>	31	
<212>	DNA	
<213>	Artificial Sequence	

- 494 -

<220>

<223>	Synthetic	
<400> ctcctc	326 caag tgcacaacga gctggtcctg g	31
<210>	327	
<211>	31	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ccagga	327 ccag ctcgttgtgc acttggagga g	31
<210>	328	
<211>	26	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gccgcc	328 ctcc tgaagcggct taaggg	26
<210>	329	
<211>	26	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> cccttaa	329 agcc gcttcaggag ggcggc	26
<210>	330	

(211)	20	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> atcggc	330 aaga cgcagaagac gggcaagc	28
<210>	331	
<211>	28	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gcttgc	331 ccgt cttctgcgtc ttgccgat	28
<210>	332	
<211>	27	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> ttgcag	332 gtgc acaacgaact ggtcctc	27
<210>	333	
<211>	27	
<212>	DNA	

<220>		
<223>	Synthetic	
<400,> gaggaco	333 cagt tegttgtgca cetgeaa	27
<210>	334	
<211>	36	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> cagacca	.334 atga attccacccc actttttgac ctggag	36
<210>	335	
<211>	36	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
	335 gegg cegecegagg cegecgecag ggecag	36
<210>	336	
<211>	36	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> cagacca	336 atga attccctgcc cctctttgag cccaag	36

<210>	337	
<211>	36	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400>	337 cgcg ccgcccagg cggcggccaa ggcgtt	36
904440		,
<210>	338	
<211>	30	
<212>	DNA	
<213>	Artificial Sequence	
<220>		
<223>	Synthetic	
<400> gaggtg	338 gage ggeeeetete eegggtettg	30
<210>	339	
<211>	30	
<212>		
<213>	Artificial Sequence	
<220>		
	Synthetic	
<400> caagac	339 ccgg gagaggggcc gctccacctc	30
<210>	340	
<211>	2505	
<212>		
-212	Artificial Compans	

## <223> Synthetic

<400> 340 atggaattca ccccactttt tgacctggag gaacccccca agcgggtgct tctggtggac 60 ggccaccacc tggcctaccg caccttctat gccctgagcc tcaccacctc ccggggggag 120 ccggtgcaga tggtctacgg cttcgcccgg agcctcctca aggccttgaa ggaggacgga 180 caggeggtgg tegtggtett tgaegecaag geceeteet teegecaega ggeetaegag 240 300 gestacaagg egggeeggge coccaceeg gaggaettee ceegeeaget egeettggte aageggetgg tggacettet gggeetggte egeetegagg eeceggggta egaggeggae 360 gacgtcctgg gcaccctggc caagaaggcc gaaagggagg ggatggaggt gcgcatcctc 420 acgggagacc gggacttett ccageteete teegagaagg teteggteet eetgeeggae 480 gggaccctgg tcaccccaaa ggacgtccag gagaagtacg gggtgccccc ggagcgctgg 540 gtggaettee gegeeeteae gggggaeege teggaeaaea teeceggggt ggeggggata 600 ggggagaaga ccgcccttcg actcctcgca gagtggggga gcgtggaaaa cctcctgaag 660 aacctggacc gggtaaagcc ggactcgctc cggcgcaaga tagaggcgca cctcgaggac 720 ctecacetet cettagacet ggeeegeate egeacegace tececetgga ggtggacttt 780 aaggccctgc gccgcaggac ccccgacctg gagggcctga gggccttttt ggaggagctg 840 gagtteggaa geeteeteea egagttegge eteetgggag gggagaagee eegggaggag 900 gececetgge eccegecega aggggeette gtgggettee teettteeeg caaggageee 960 atgtgggcgg agettetgge eetggeggeg geeteggagg geegggteea eegggeaaea 1020 agcccggttg aggccctggc cgacctcaag gaggcccggg ggttcctggc caaggacctg 1080 gccgttttgg ccctgcggga gggggtggcc ctggacccca cggacgaccc cctcctggtg 1140 gectacetee tggaecegge caacacecae eeegaggggg tggeeeggeg etaeggggge 1200 gagttcacgg aggacgcagc ggagagggcc ctcctctccg agaggctctt ccagaacctc 1260 tttaaacggc tttccgagaa gctcctctgg ctctaccagg aggtggagcg gcccctctcc 1320 egggtettgg cecacatgga ggeceggggg gtgaggetgg acgtececet tetggaggee 1380 ctctcctttg agctggagaa ggagatggag cgcctggagg gggaggtctt ccgtttggcc 1440 ggccacccct tcaacctcaa ctcccgcgac cagctggaaa gggtcctctt tgacgagctg 1500 ggcctcaccc cggtgggccg gacgcagaag acgggcaagc gctccaccgc ccagggggcc 1560 etggaggeee teegggggge ceaceceate gtggagetea teeteeagta eegggagett 1620 tecaagetea aaageaeeta eetggaeeee etgeeeegge tegteeaeee geggaeggge 1680

cggctccaca cccgcttcaa ccagacggcc acggccacgg gaaggctttc caqctccqac 1740 cccaacctgc agaacatccc cgtgcgcacc cccttggggc agcgcatccg caaggccttc 1800 gtggccgagg aggggtggct ccttttggcg gcggactact cccagattga gctccgggtc 1860 ctggcccacc tctcggggga cgagaacctg aagcgggtct tccgggaggg gaaggacatc 1920 cataccgaga ccgccgcctg gatgttcggc ttagaccccg ctctggtgga tccaaaqatq 1980 cgccgggcgg ccaagacggt caacttcggc gtcctctacg ggatgtccgc ccacaggctc 2040 tcccaggagc tcggcataga ctacaaggag gcggaggcct ttattqagcg ctacttccaq 2100 agetteecca aggtgegge etggatagaa aggaceetgg aggagggeeg gaegeggge 2160 tacgtggaga ccctgttcgg caggaggcgc tatgtgcccg acctggcctc ccgggtccgc 2220 teggtgeggg aggeggegga geggatggee tteaacatge eegtgeaggg caceqeegee 2280 gacctgatga agatcgccat ggtcaagctc ttccccaggc taaagcccct gggggcccac 2340 etectectee aagtgeacaa egagetggte etggaggtge eegaggaeeg ggeegaggag 2400 gccaaggccc tggtcaagga ggtcatggag aacgcctacc ccctggacgt gcccctcgaq 2460 gtggaggtgg gcgtgggtcg ggactggctg gaggcgaagc aggat 2505

<210> 341

<211> 835

<212> PRT

<213> Artificial Sequence

<220>

E

<223> Synthetic

<400> 341

Met Glu Phe Thr Pro Leu Phe Asp Leu Glu Glu Pro Pro Lys Arg Val 1 5 10 15

Leu Leu Val Asp Gly His His Leu Ala Tyr Arg Thr Phe Tyr Ala Leu 20 25 30

Ser Leu Thr Thr Ser Arg Gly Glu Pro Val Gln Met Val Tyr Gly Phe 35 40 45

Ala Arg Ser Leu Leu Lys Ala Leu Lys Glu Asp Gly Gln Ala Val Val 50 55 60

Val Val Phe Asp Ala Lys Ala Pro Ser Phe Arg His Glu Ala Tyr Glu